Interactive Voice Response Installation and Configuration Guide

Avaya Business Communications Manager

Document Status: **Standard**

Document Number: **NN40070-300**

Document Version: **04.02**

Date: **October 2010**

© 2010 Avaya Inc.
All Rights Reserved.

Notices
While reasonable efforts have been made to ensure that the information in this document is complete and accurate at the time of printing, Avaya assumes no liability for any errors. Avaya reserves the right to make changes and corrections to the information in this document without the obligation to notify any person or organization of such changes.

Documentation disclaimer
Avaya shall not be responsible for any modifications, additions, or deletions to the original published version of this documentation unless such modifications, additions, or deletions were performed by Avaya. End User agree to indemnify and hold harmless Avaya, Avaya's agents, servants and employees against all claims, lawsuits, demands and judgments arising out of, or in connection with, subsequent modifications, additions or deletions to this documentation, to the extent made by End User.

Link disclaimer
Avaya is not responsible for the contents or reliability of any linked Web sites referenced within this site or documentation(s) provided by Avaya. Avaya is not responsible for the accuracy of any information, statement or content provided on these sites and does not necessarily endorse the products, services, or information described or offered within them. Avaya does not guarantee that these links will work all the time and has no control over the availability of the linked pages.

Warranty
Avaya provides a limited warranty on this product. Refer to your sales agreement to establish the terms of the limited warranty. In addition, Avaya's standard warranty language, as well as information regarding support for this product, while under warranty, is available to Avaya customers and other parties through the Avaya Support Web site: http://www.avaya.com/support
Please note that if you acquired the product from an authorized reseller, the warranty is provided to you by said reseller and not by Avaya.

Licenses
THE SOFTWARE LICENSE TERMS AVAILABLE ON THE AVAYA WEBSITE, HTTP://SUPPORT.AVAYA.COM/LICENSEINFO/ ARE APPLICABLE TO ANYONE WHO DOWNLOADS, USES AND/OR INSTALLS AVAYA SOFTWARE, PURCHASED FROM AVAYA INC., ANY AVAYA AFFILIATE, OR AN AUTHORIZED AVAYA RESELLER (AS APPLICABLE) UNDER A COMMERCIAL AGREEMENT WITH AVAYA OR AN AUTHORIZED AVAYA RESELLER. UNLESS OTHERWISE AGREED TO BY AVAYA IN WRITING, AVAYA DOES NOT EXTEND THIS LICENSE IF THE SOFTWARE WAS OBTAINED FROM ANYONE OTHER THAN AVAYA, AN AVAYA AFFILIATE OR AN AVAYA AUTHORIZED RESELLER, AND AVAYA RESERVES THE RIGHT TO TAKE LEGAL ACTION AGAINST YOU AND ANYONE ELSE USING OR SELLING THE SOFTWARE WITHOUT A LICENSE. BY INSTALLING, DOWNLOADING OR USING THE SOFTWARE, OR AUTHORIZING OTHERS TO DO SO, YOU, ON BEHALF OF YOURSELF AND THE ENTITY FOR WHOM YOU ARE INSTALLING, DOWNLOADING OR USING THE SOFTWARE (HEREINAFTER REFERRED TO INTERCHANGEABLY AS "YOU" AND "END USER"), AGREE TO THESE TERMS AND CONDITIONS AND CREATE A BINDING CONTRACT BETWEEN YOU AND AVAYA INC. OR THE APPLICABLE AVAYA AFFILIATE ("AVAYA").

Copyright
Except where expressly stated otherwise, no use should be made of the Documentation(s) and Product(s) provided by Avaya. All content in this documentation(s) and the product(s) provided by Avaya including the selection, arrangement and design of the content is owned either by Avaya or its licensors and is protected by copyright and other intellectual property laws including the sui generis rights relating to the protection of databases. You may not modify, copy, reproduce, republish, upload, post, transmit or distribute in any way any content, in whole or in part, including any code and software. Unauthorized reproduction, transmission, dissemination, storage, and or use without the express written consent of Avaya can be a criminal, as well as a civil offense under the applicable law.

Third Party Components
Certain software programs or portions thereof included in the Product may contain software distributed under third party agreements ("Third Party Components"), which may contain terms that expand or limit rights to use certain portions of the Product ("Third Party Terms"). Information regarding distributed Linux OS source code (for those Products that have distributed the Linux OS source code), and identifying the copyright holders of the Third Party Components and the Third Party Terms that apply to them is available on the Avaya Support Web site: http://support.avaya.com/Copyright.

Trademarks
The trademarks, logos and service marks ("Marks") displayed in this site, the documentation(s) and product(s) provided by Avaya are the registered or unregistered Marks of Avaya, its affiliates, or other third parties. Users are not permitted to use such Marks without prior written consent from Avaya or such third party which may own the Mark. Nothing contained in this site, the documentation(s) and product(s) should be construed as granting, by implication, estoppel, or otherwise, any license or right in and to the Marks without the express written permission of Avaya or the applicable third party. Avaya is a registered trademark of Avaya Inc. All non-Avaya trademarks are the property of their respective owners.

Downloading documents
For the most current versions of documentation, see the Avaya Support. Web site: http://www.avaya.com/support

Contact Avaya Support
Avaya provides a telephone number for you to use to report problems or to ask questions about your product. The support telephone number is 1-800-242-2121 in the United States. For additional support telephone numbers, see the Avaya Web site: http://www.avaya.com/support

Contents

Getting started **5**
About this guide 5
Audience 5
Acronyms 5
Symbols and text conventions 6
Related publications 7
Customer service 9
Navigation 9
Getting technical documentation 9
Getting product training 9
Getting help from a distributor or reseller 9
Getting technical support from the Avaya Web site 9

Installing Interactive Voice Response **11**
Overview of installing IVR 11
Hardware and software requirements 12
IVR capacities 12
Enabling IVR 13
Administering several IVR systems 13
Installing PeriView 15
Before you install PeriView 15
PeriView 2.1 and PeriView 2.1 Consolidator installation 16
Adjusting the number of voice ports 24
Uploading IVR prompts 26
Installing the client database software 28
Configuring host access 28
Enabling the Host Communication Access keycode 28
Launching an application in PeriView 41
Dialing the IVR extension 49
Assigning lines to IVR 49
Viewing or changing the system fax name 51

Administering Interactive Voice Response **55**
Stopping, starting, or restarting IVR service 55
Uninstalling PERI packages for BCM/IVR 1.x automatically 57
Using IVR Basic Settings 57
Using IVR Advanced Commands 57
Using IVR Advanced Configuration 59
Backing up and restoring IVR 61
IVR logs 61

IVR guides 61
IVR group privileges 62

Database Access Configuration 65
Overview 65
VMST 3 on the Avaya BCM Node 66
Configuring periq on the Windows Node 66
Configuring sqlclnt on the Windows Node 67

Chapter 1
Getting started

About this guide

This guide leads a system administrator through installing and configuring the Interactive Voice Response (IVR) application on an Avaya Business Communications Manager (Avaya BCM) system.

IVR is an automated telephony application that prompts callers with a combination of recorded menus and prompts, and provides callers with real-time data from databases. Users enter digits from their touchtone keypad that direct the IVR application to access databases and play information back to the caller.

IVR is a call-handling system that allows employees to perform their jobs, and agents to make sales, rather than answer frequently asked questions. IVR can distribute calls, make announcements, and give callers access to relevant information from dynamic databases 24 hours a day, 7 days a week. This chapter contains:

- About this guide
- Audience
- Acronyms
- Symbols and text conventions
- Related publications
- Customer service

Audience

This guide is intended for use by Avaya BCM Administrators and Installers who want to install IVR on their Avaya BCM system. This guide is also intended for IVR users.

Acronyms

The following is a list of acronyms used in this guide.

Table 1

Acronym	Description
BCM	Business Communications Manager
BRU	Backup and restore utility
IVR	Interactive Voice Response

Table 1

Acronym	Description
JRE	Java Runtime Environment
MMDP	MPS Manager Data Provider

Symbols and text conventions

These symbols are used to Highlight critical information for the Avaya BCM system:

Caution: Alerts you to conditions where you can damage the equipment.

Danger: Alerts you to conditions where you can get an electrical shock.

Warning: Alerts you to conditions where you can cause the system to fail or work improperly.

Note: A Note alerts you to important information.

Tip: Alerts you to additional information that can help you perform a task.

Security note: Indicates a point of system security where a default should be changed, or where the administrator needs to make a decision about the level of security required for the system.

Warning: Alerts you to ground yourself with an antistatic grounding strap before performing the maintenance procedure.

Warning: Alerts you to remove the Avaya BCM main unit and expansion unit power cords from the ac outlet before performing any maintenance procedure.

These conventions and symbols are used to represent the Business Series Terminal display and key pad.

Convention	Example	Used for
Word in a special font (shown in the top line of the display)	Pswd:	Command line prompts on display telephones.
Underlined word in capital letters (shown in the bottom line of a two line display telephone)	PLAY	Displaybuttonkey option. Available on two line display telephones. Press thebuttonkey button directly below the option on the display to proceed.
DialpadKey pad buttonskeysDialpad buttons	£	ButtonskeysButtons you press on the dialpadkey paddialpad to select a particular option.

These text conventions are used in this guide to indicate the information described:

Convention	Description
bold Courier text	Indicates command names and options and text that you need to enter. Example: Use the **info** command. Example: Enter **show ip** {**alerts**|**routes**}.
italic text	Indicates book titles
plain Courier text	Indicates command syntax and system output (for example, prompts and system messages). Example: Set Trap Monitor Filters
FEATURE HOLD RELEASE	Indicates that you press the button with the coordinating icon on whichever set you are using.

Related publications

This document refers to other related publications, which appear in the following list. To locate specific information, you can refer to the *Master Index of Avaya BCM Library.*

Avaya BCM450 Administration and Security (NN40160-601)

Avaya Business Communications Manager 450 1.0 Configuration—System (NN40160-501)

Avaya Business Communications Manager 450 1.0 Configuration—Devices (NN40160-500)

Keycode Installation Guide (NN40010-301)

CallPilot Manager Set Up and Operation Guide BCM450 1.0 (NN40160-304)

Media Processor Server Series COMMGR Reference Manual

Avaya BCM -IVR Integration Supplement

PeriReporter User's Guide

Customer service

Visit the Avaya Web site to access the complete range of services and support that Avaya provides. Go to www.avaya.com or go to one of the pages listed in the following sections.

Navigation

- "Getting technical documentation" on page 9
- "Getting product training" on page 9
- "Getting help from a distributor or reseller" on page 9
- "Getting technical support from the Avaya Web site" on page 9

Getting technical documentation

To download and print selected technical publications and release notes directly from the Internet, go to www.avaya.com/support.

Getting product training

Ongoing product training is available. For more information or to register, you can access the Web site at www.avaya.com/support. From this Web site, you can locate the Training contacts link on the left-hand navigation pane.

Getting help from a distributor or reseller

If you purchased a service contract for your Avaya product from a distributor or authorized reseller, contact the technical support staff for that distributor or reseller for assistance.

Getting technical support from the Avaya Web site

The easiest and most effective way to get technical support for Avaya products is from the Avaya Technical Support Web site at www.avaya.com/support.

Chapter 2
Installing Interactive Voice Response

This chapter contains the information and procedures shown in this list:

- Overview of installing IVR
  - Hardware and software requirements
  - IVR capacities
- Enabling IVR
- Administering several IVR systems
- Installing PeriView
  - Before you install PeriView
  - PeriView 2.1 and PeriView 2.1 Consolidator installation
- Adjusting the number of voice ports
- Uploading IVR prompts
- Configuring host access
  - Enabling the Host Communication Access keycode
- Launching an application in PeriView
- Dialing the IVR extension
- Assigning lines to IVR

Overview of installing IVR

To install IVR you must know how to:

- log on to Business Element Manager and use the Business Element Manager interface

  Refer to the *Avaya BCM450 Administration and Security* (NN40160-601) for more information.

- log on to CallPilot Manager and use the CallPilot Manager interface

  Refer to the *CallPilot Manager Set Up and Operation Guide BCM450 1.0* (NN40160-304) for more information.

- use PeriView

  Refer to your PeriView system documentation for more information.

Hardware and software requirements

To install PeriView you must have:

- a computer that runs Windows 2000

IVR capacities

Maximum number of simultaneous calls	24 (24 voice ports)
Maximum number of voice ports	63
Maximum number of voice ports that can be allocated to voicemail	63
Maximum number of IVR fax calls	8
Maximum number of fax ports	8
Recording time available on Avaya Business Communications Manager (Avaya BCM) for all applications (IVR, CallPilot, and Contact Center)	400 hours

Note: There are other restrictions that can alter the real number of voice ports available on an Avaya BCM. For more information, refer to the *Avaya Business Communications Manager 450 1.0 Configuration—System* (NN40160-501). Voice ports cannot be shared between voicemail, Contact Center, and IVR.

To install IVR

1. Enable the IVR software authorization code.

   Refer to "Enabling IVR" on page 13.

2. If you are going to use IVR in a multinode environment, refer to "Administering several IVR systems" on page 13.

3. Install PeriView on a Windows 2000 client PC.

   Refer to "Installing PeriView" on page 15.

4. Assign voice ports to IVR.

   Refer to "Adjusting the number of voice ports" on page 24.

5. Upload IVR prompts to the Avaya BCM.

   Refer to "Uploading IVR prompts" on page 26.

6. Configure host access if your IVR scripts use host access.

   Refer to "Configuring host access" on page 28.

7 Use the PeriView Application Manager to load and configure the scripts.

Refer to "Launching an application in PeriView" on page 41 and see the *PeriView User's Guide* for more details.

8 Verify that IVR is working by dialing the IVR extension.

Refer to "Dialing the IVR extension" on page 49.

9 Use CallPilot Manager to assign the lines you want the IVR scripts to answer.

Refer to "Assigning lines to IVR" on page 49.

10 Back up IVR.

For information on how to perform backup and restore activities, refer to the *Avaya BCM450 Administration and Security* (NN40160-601).

Enabling IVR

To enable IVR, load an Avaya BCM keycode file and IVR-specific authorization code on the Business Element Manager. The IVR-specific authorization code enables the number of voice ports to be used by the IVR application to service scripts. This authorization code also enables fax resources that can be used by IVR scripts.

For more information and procedures on installing the Avaya BCM keycode and IVR authorization code, refer to the *Keycode Installation Guide* (NN40010-301).

Administering several IVR systems

If you want to use PeriView to administer several IVR systems on different Avaya BCMs, you must assign a different node number to each IVR system.

To change the node number

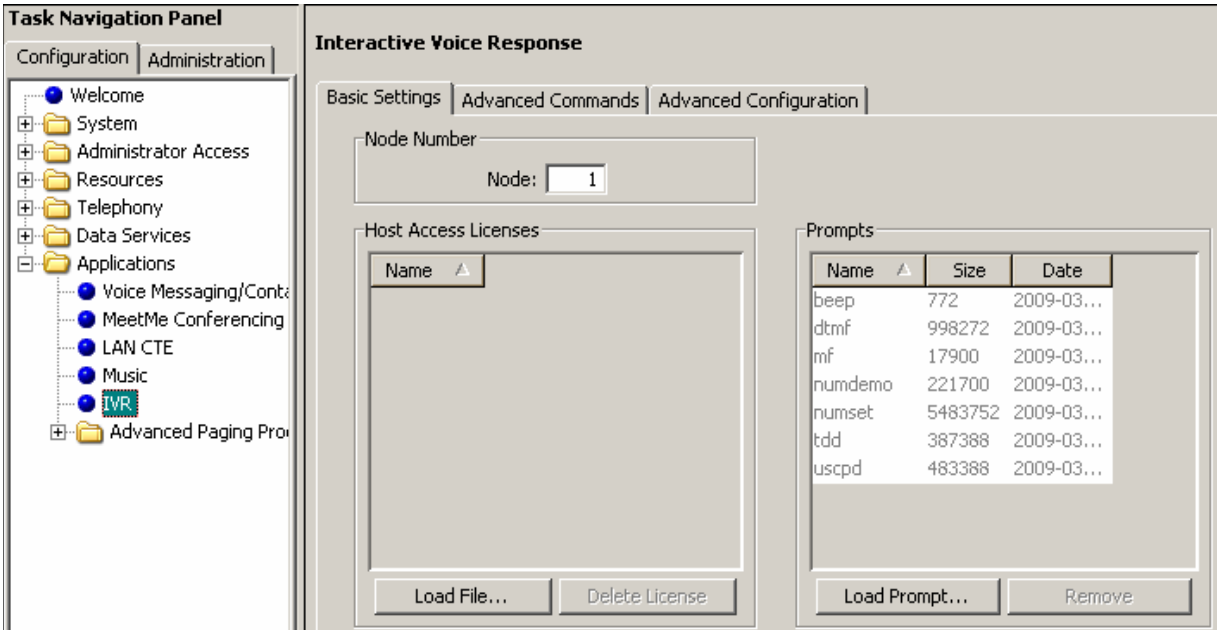
1 Launch and log on to Business Element Manager.

The Business Element Manager opens with the Task Navigation Panel showing.

2 From the **Configuration** tab, open the **Applications** folder.

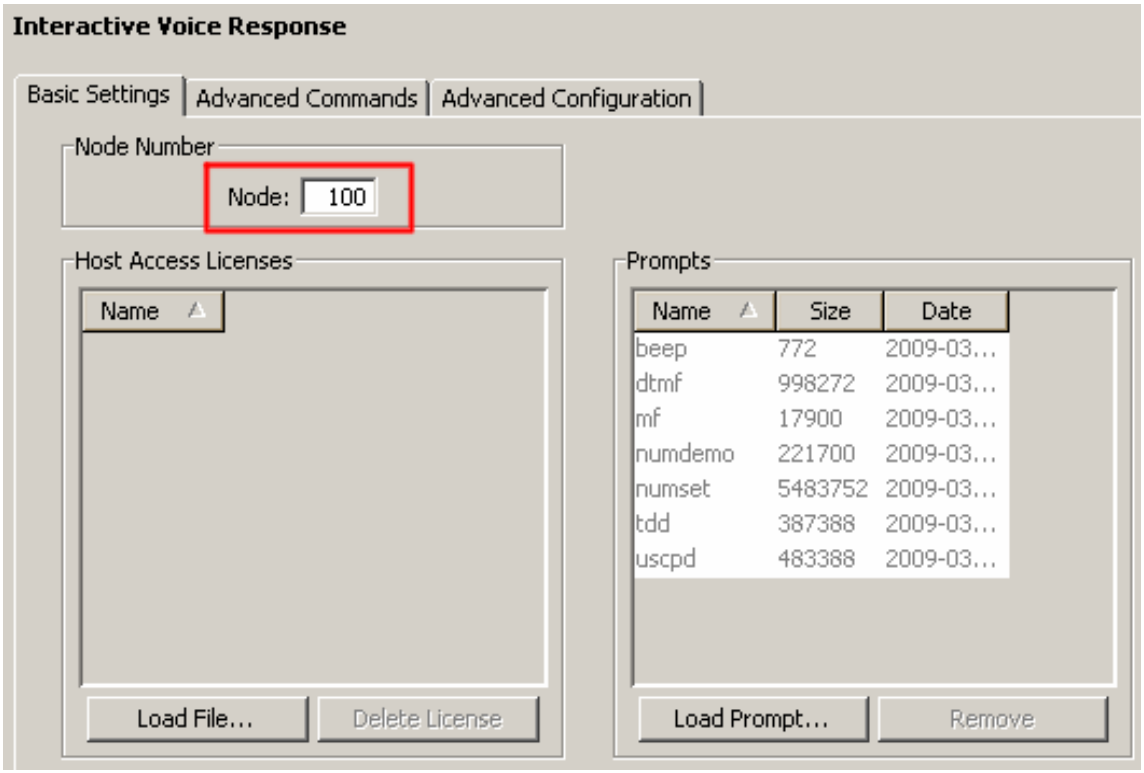
3 Click **IVR**.

The Interactive Voice Response panel opens with the Basic Settings tab showing.



4 In the **Node** field, enter a node number.

The node number is 1 by default. The node number can be between 1 and 5000.



Note: IVR restarts when you change the node number.

5 You must next install PeriView. Go to "To install BCM/IVR 2.x PeriView Consolidator".

Installing PeriView

PeriView is the IVR administrative client. Use PeriView to administer IVR scripts on your Avaya BCM. Before you can use PeriView, you must install it on a client computer.

Before you install PeriView

Ensure the following before you install PeriView:

- Order the Avaya BCM IVR 2.1 Management and IVR Tools CD Kit
- Make sure you install PeriView on a Windows 2000 PC. PeriView can be installed on Windows 2000 only.

- Make sure you have administrative privileges, so that you can install services and update environment settings.

- Remove any versions of Perl currently installed on the workstation. PeriView uses a version of Perl specifically designed to work with PeriView. You must remove any other versions of Perl due to potential incompatibility with PeriView.

- Quit all active applications and Avaya or Periphonics services.

- If Windows 2000 is already installed on your system and you are running the Windows Desktop Update option (Active Desktop), deactivate this option. See the Windows 2000 online Help for instructions. Active Desktop affects color renditions in PeriView.

PeriView 2.1 and PeriView 2.1 Consolidator installation

PeriView 2.1 is an integrated systems management application suite that provides full administration and control over Avaya BCM self-service platforms. It is used by BCM/IVR 2.1 System Administrators to manipulate and view network activity and to deploy and maintain applications in the networked environment.

PeriView Consolidator is the communications hub for BCM/IVR system administration. The System Administrator remotely manages the BCM/IVR system by pointing any User PC web browser to the PeriView Consolidator workstation. The PeriView Consolidator workstation communicates with and collects data from the Avaya BCMs. The System Administrator also administers the BCM/IVR 2.1 system directly from the PeriView Consolidator workstation.

The PeriView Consolidator Workstation runs both the Apache Web Server and MPS Manager Data Provider (MMDP). The PeriView Consolidator MMDP communicates with MMDPs running on the Avaya BCMs and collects information.The BCM/IVR 2.1 system is comprised of three machines:

- **User PC:** A Windows-based machine (Windows XP or Windows 2000) with Internet Explorer 6.0 or Netscape 7, and Java Runtime Environment (JRE) 1.5.0 (or higher). Neither PeriView nor Peripdp is installed on this machine; therefore, the user manages the Avaya BCM through browser-based PeriView.

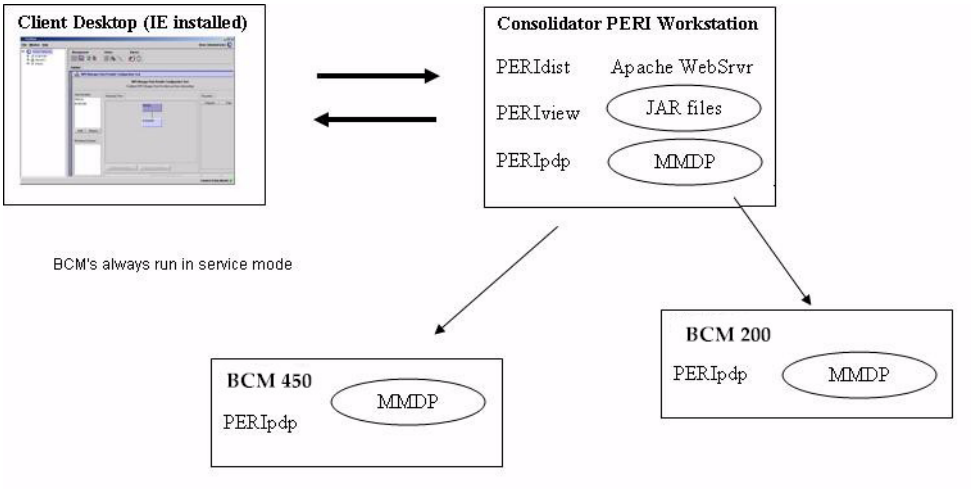
- **BCM:** A machine with an NCGL operating system. JRE does not need to be installed on this machine. Peripdp is installed on the Avaya BCM, but PeriView is not.

- **PeriView Consolidator Workstation:** a Windows-based machine (Windows XP or Windows 2000) with both PeriView and Peripdp installed. This machine must also be equipped with a web server (preferably Apache) and some Peri packages.

The system administrator manages the BCM/IVR system by pointing the user PC web browser to the PeriView Consolidator Workstation, which then communicates and collects data from the Avaya BCMs.

PeriView is not installed on the User PC. Rather, the User PC accesses information on the PeriView Consolidator Workstation through a browser-based PeriView.

The PeriView Consolidator Workstation runs both the Apache Web Server and MPS Manager Data Provider (MMDP). The PeriView Consolidator MMDP communicates with MMDPs running on the Avaya BCMs and collects information. Information collected by PeriView Consolidator MMDP process is sent by jar files to the user PC by the Apache Web Server.

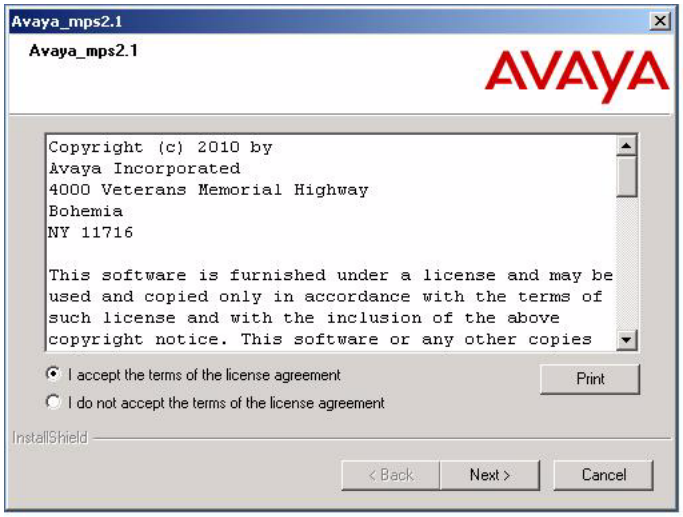


The Avaya BCM MMDPs always run in service mode. An MMDP process in service mode will allow another, higher level MMDP process (for example, the PeriView Consolidator) to establish a constant and persistent connection.

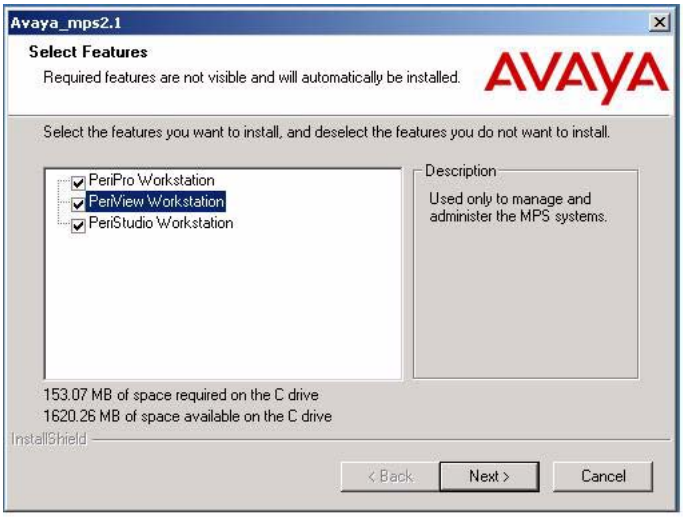
By design, the User PC can only log on to the PeriView Consolidator to get a PeriView display, not the Avaya BCM (or Avaya BCMs). This is so even if the PeriView Consolidator Workstation and the User PC are the same machine.

To install BCM/IVR 2.x PeriView Consolidator

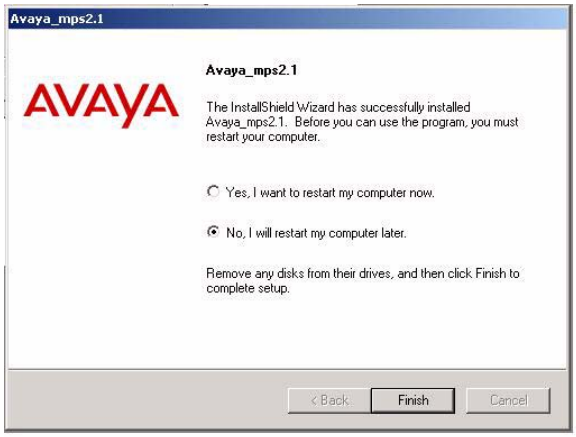
1. From the *MPS 2.1 Software, Documentation and Update CD*, go to **Preinstall** and install the JAVA runtime.
2. From the *MPS 2.1 Software, Documentation and Update CD*, start **Avaya_mps2.1**.
3. Accept the Agreement and click **Next**.


Avaya_mps2.1
Avaya_mps2.1
AVAYA
Copyright (c) 2010 by
Avaya Incorporated
4000 Veterans Memorial Highway
Bohemia
NY 11716
This software is furnished under a license and may be
used and copied only in accordance with the terms of
such license and with the inclusion of the above
copyright notice. This software or any other copies
I accept the terms of the license agreement
I do not accept the terms of the license agreement
Print
InstallShield
< Back
Next >
Cancel

4. In the Select features screen, make sure that the PeriView Workstation is selected and click **Next**.


Avaya_mps2.1
Select Features
Required features are not visible and will automatically be installed.
AVAYA
Select the features you want to install, and deselect the features you do not want to install.
PeriPro Workstation
PeriView Workstation
PeriStudio Workstation
Description
Used only to manage and administer the MPS systems.
153.07 MB of space required on the C drive
1620.26 MB of space available on the C drive
InstallShield
< Back
Next >
Cancel

5 The selected features will now install. At the end of the installation, you will be prompted to restart the Computer. Select **No** and click **Finish**.


Avaya_mps2.1
AVAYA
Avaya_mps2.1
The InstallShield Wizard has successfully installed Avaya_mps2.1. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

6 From the MPS 2.1 Software, Documentation and Update CD, install any patches by double-clicking on each files in the Patches folder.

When this window appears, patches have been successfully installed:

7 Confirm installation of PeriView and PERIpdp 2.1 from the command line by entering:

C:\>perl -S perireiv.plx outfile=STDOUT

```
C:\>perl -S perirev.plx outfile=STDOUT
. . .
PERIpdp                         2.10    PkgCutDate_20100723

PERIview                        2.10    PkgCutDate_20100723
```

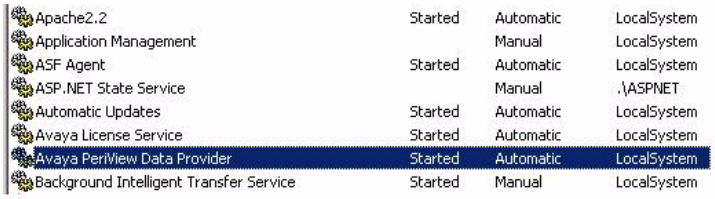
8 In C:\Program Files\Nortel\PERIpdp\etc, back up the userdb.xml file.

9 From the BCM/IVR Toolkit CD, copy the file userdb.xml.BCM to overwrite C:\Program Files\Nortel\PERIpdp\etc\userdb.xml.

The userdb.xml.BCM file contains the administrative plugins required for BCM/IVR management.

10 Restart Apache and PDP services.

11 Ensure PeriView Consolidator host name appears in C:\Program Files\Nortel\PERIpdp\etc\mmdp.cfg.


Apache2.2 Started Automatic LocalSystem
Application Management Manual LocalSystem
ASF Agent Started Automatic LocalSystem
ASP.NET State Service Manual .\ASPNET
Automatic Updates Started Automatic LocalSystem
Avaya License Service Started Automatic LocalSystem
Avaya PeriView Data Provider Started Automatic LocalSystem
Background Intelligent Transfer Service Started Manual LocalSystem

12 If you are managing the BCM/IVR system from a browser located outside the local host, change permissions in:

C:\ProgramFiles\Nortel\PERIdist\apache\conf\httpd.conf

```
allow from all
#
#    deny from all
_
```

13 From Services, restart the Apache web browser.

14 Ensure PeriView Consolidator is running by pointing the Apache web browser to the PeriView URL http://<Consolidator IP>/PeriView/PeriView.html.

a In the **UserID** field, enter “Administrator”.

b In the **Password** field, enter “root;”.

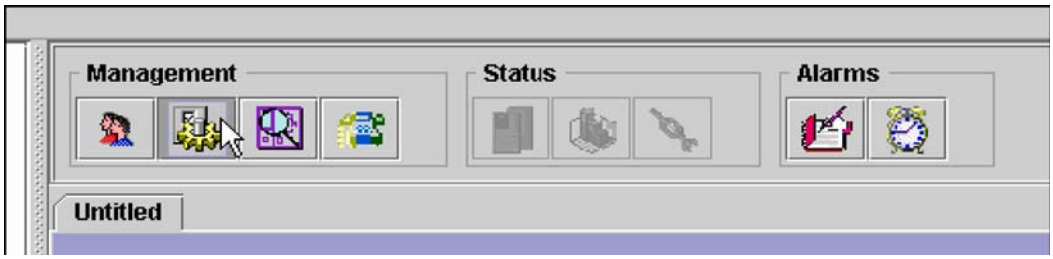
c Verify that the **Host** field contains the PeriView Consolidator IP address.

d Verify that the **Port** field contains “9191”.

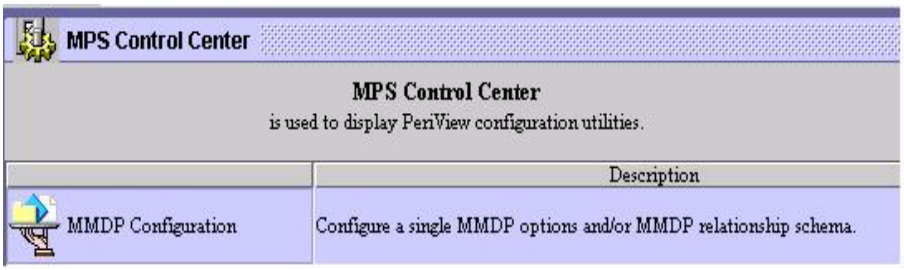
e Click **OK**.

You are logged on and ready to add the Avaya BCM nodes to the system.

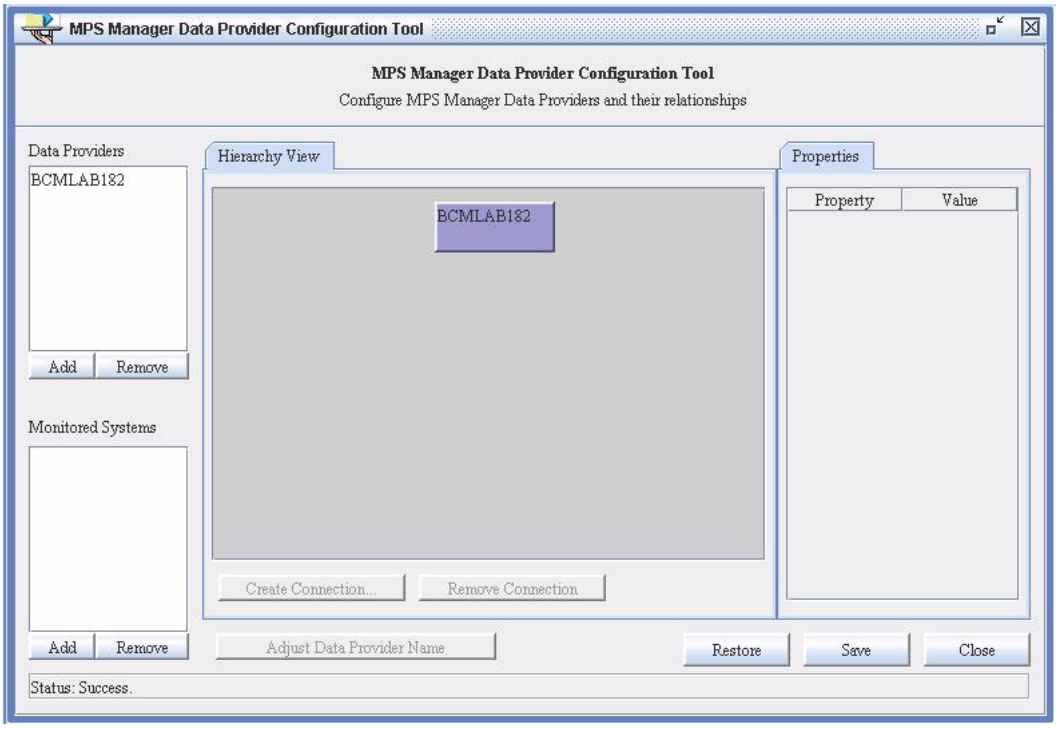
15 Click **Control Center** (the button located on the far right of the Management toolbar).



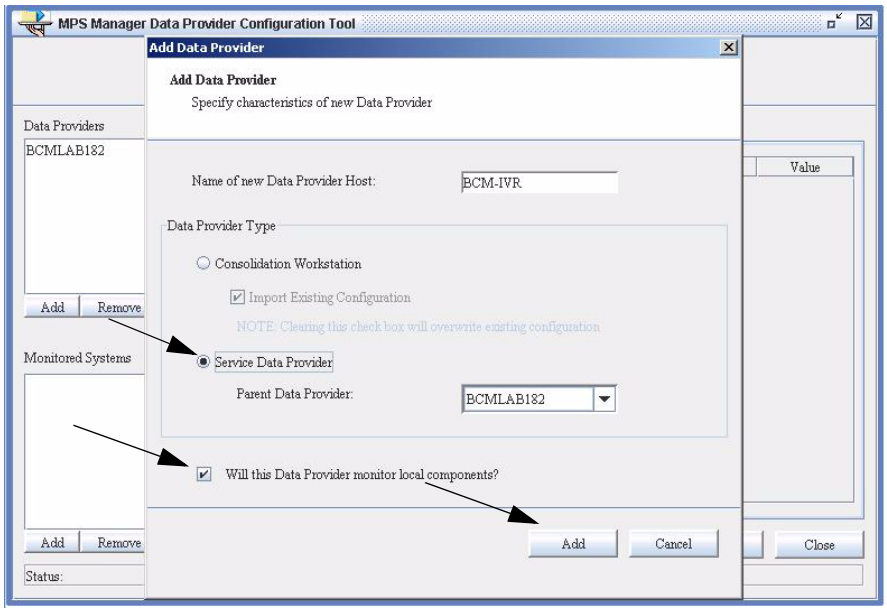
16 From the **MPS Control Center** window, select **MMDP Configuration.**


MPS Control Center
MPS Control Center
is used to display PeriView configuration utilities.
Description
MMDP Configuration
Configure a single MMDP options and/or MMDP relationship schema.

17 Click **Add** to add a data provider.



18 In the **Add Data Provider** window, enter the host name, for example, BCM-IVR, in the **Data Provider Name** field.



Note: To ensure the Data Provider host name translates to its corresponding IP address, make a DNS entry or place an entry in the consolidators host file:

```
C:\winnt\system32\drivers\etc\hosts
```

19 Select the BCM-IVR as the Service Data Provider by checking the Service Data Provider option.

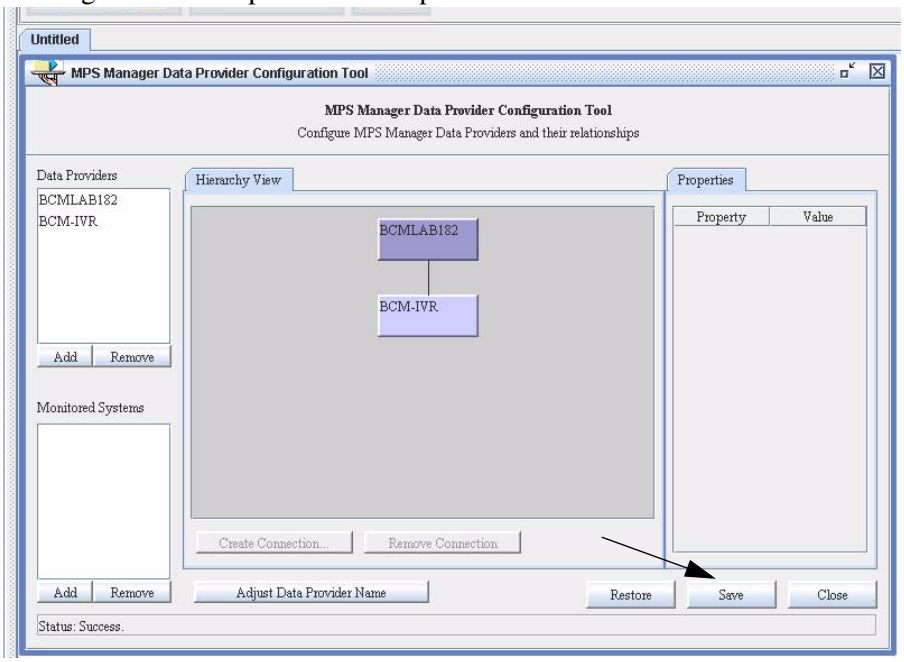
20 Select the PeriView Consolidator workstation as the Parent Data Provider.

21 At the bottom of the window, ensure that the box next to **Will the Data Provider monitor local components** field is checked.

This triggers the BCM-IVR MMDP process to connect to the local srp to get state information.

22 Click **Add**.

The MPS Manager Data Provider Configuration Tool window appears, showing a hierarchy of two MMDPs. The PeriView Consolidator MMDP appears above the BCM-IVR MMDP, indicating that it is the parent service provider.

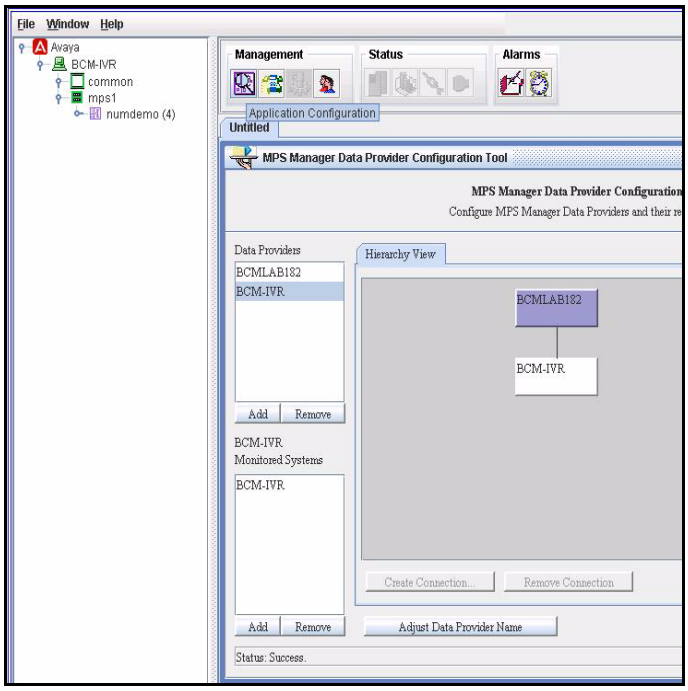


23 Select BCM-IVR from the **Data Providers** pull-down list in the upper left of the window or in the hierarchy.

The BCM-IVR is listed as a monitored system.

24 Click **Save**.

If the information from the preceding steps has been entered correctly, the BCM-IVR IP address and node are contacted. The icons representing the BCM/IVR Service Data Providers turn green when a connection is established.



Adjusting the number of voice ports

You can adjust the minimum and maximum number of IVR ports. For more information about voice ports, refer to the *Avaya Business Communications Manager 450 1.0 Configuration—Telephony* (NN40160-502).

After adjusting the minimum and maximum numbers of IVR ports, note that:

- The maximum number of simultaneous voice calls that IVR can handle is 24 (with 24 voice ports).
- The combined maximum number of voice ports for IVR, voicemail, and Contact Center cannot exceed 63.
- Fax is automatically enabled for IVR and the maximum number of fax ports is set to 8.
- The default values for IVR are the number of ports purchased for the maximum, and 2 for the minimum.

To adjust the number of voice ports

1 Launch and log on to Business Element Manager.

The Business Element Manager opens with the Task Navigation Panel showing.

2 From the **Configuration** tab, open the **Resources** folder.

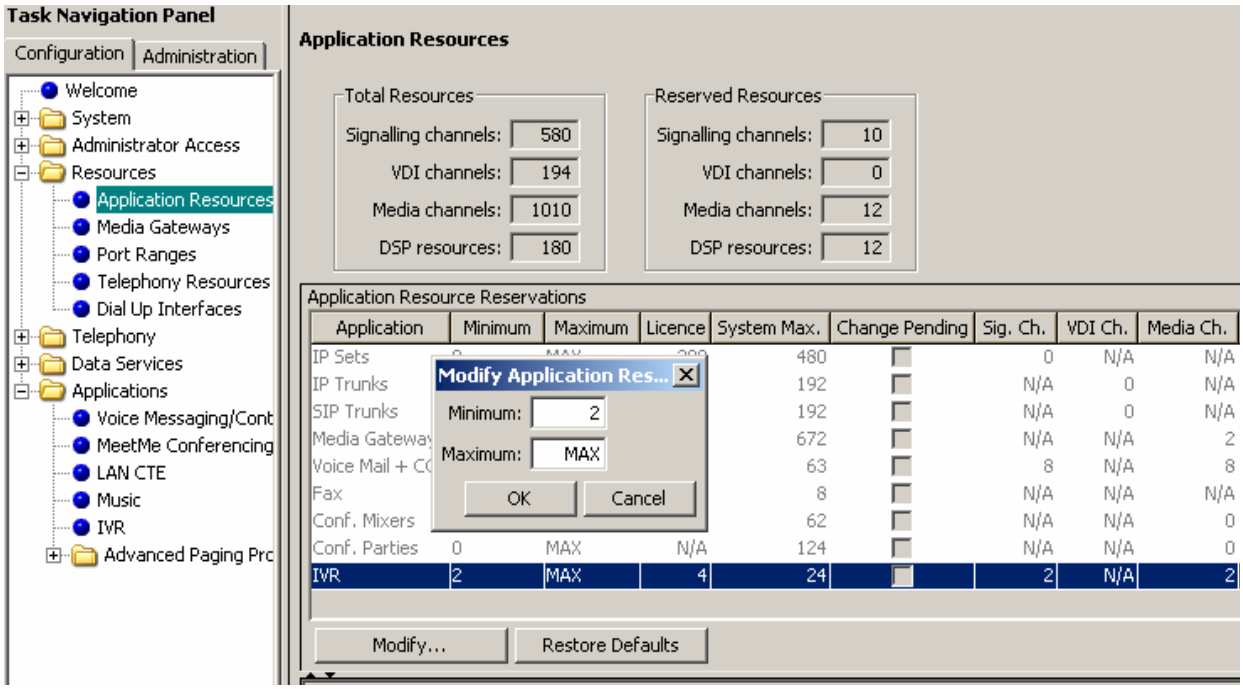
3 Click **Applications Resources**.

The Applications Resources panel opens, showing the Applications Resources Reservations table.

4 In the **Applications Resources Reservations** table, select the **IVR Ports** row.

5 Click **Modify**.

The Modify Application Resource Reservations dialog box opens.



6 Change the values in the **Minimum** and **Maximum** fields.

7 Click **OK**.

8 To change the number of fax ports, click the **Fax** line.

9 Click **Modify**.

10 Change the values in the **Minimum** and **Maximum** boxes.

Note: After you change the minimum or maximum number of IVR ports or fax ports you must reboot your system.

11 Log back on to Business Element Manager.

You are now ready to upload IVR prompts.

Go to "To upload IVR prompts".

Uploading IVR prompts

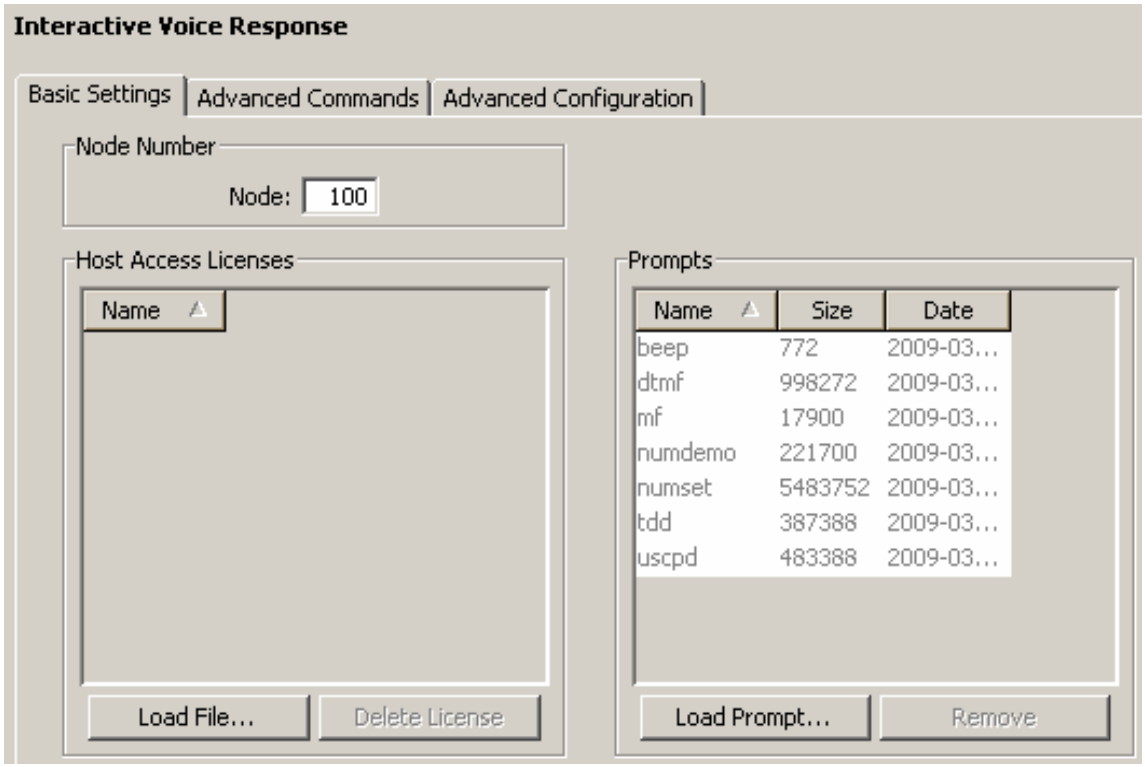
The steps for installing IVR prompts are similar to those for installing a keycode. Upload .mmi and .mmd files to your Avaya BCM system, where they are installed in the Voice File System, along with other IVR system prompt files.

When the prompts are installed, IVR restarts.

To upload IVR prompts

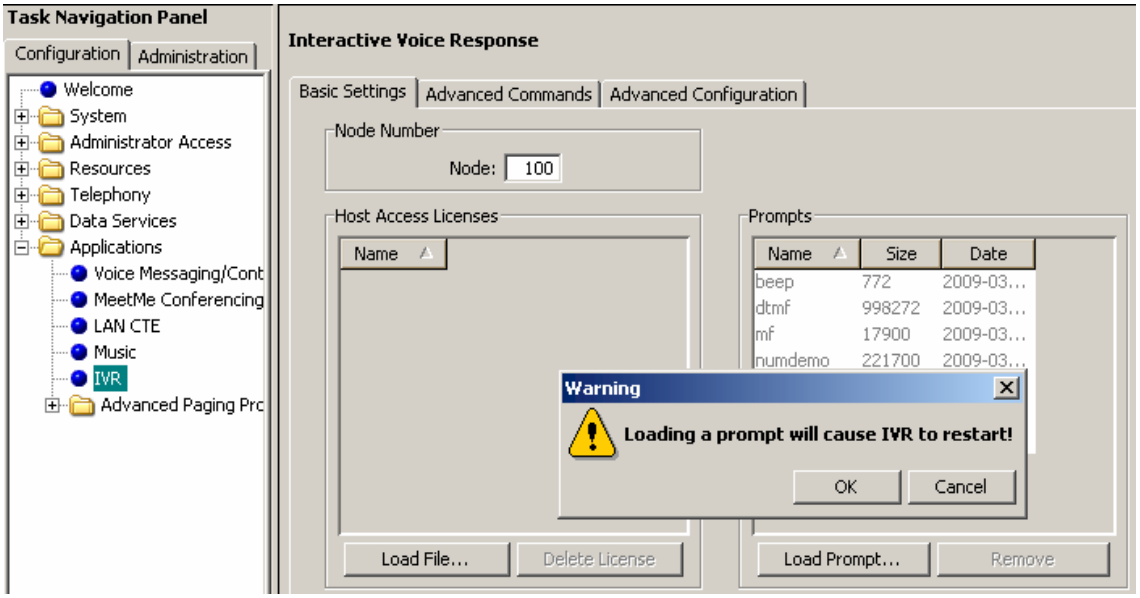
1. Ensure the prompts (.mmi and .mmd files) that have been created for your IVR system are available to be retrieved.
2. In Business Element Manager, open the **Applications** folder.
3. Click **IVR**.

   The Interactive Voice Response panel opens with the Basic Settings tab showing.



4 In the **Prompts** area, click **Load Prompt**.

A message appears warning that IVR will restart after the prompt is loaded.



5 Click **OK** to continue.

A window opens in which you can specify the location of the prompt you want to upload.

6 Use the **Look in**, **File name**, and **File type** fields to navigate to the .mmi file.

Note: You must upload the .mmi first and then the .mmd file.

7 Click **Open**.

A message appears that asks you to confirm your choice.

The .mmi file uploads to the Avaya BCM.

8 Click **OK**.

9 Use the **Look in**, **File name**, and **File type** fields to navigate to the .mmd file.

10 Click **Open**.

A message appears that asks you to confirm your choice.

The .mmd file uploads to the Avaya BCM.

11 Click **OK**.

When you have transferred both the .mmi and .mmd files, the IVR service restarts.

Installing the client database software

When you install the client database software, you must configure the host access. There are two phases for configuring the host access.

Configuring host access

To configure host access

1 Enable the host communication access keycode.

Refer to "Enabling the Host Communication Access keycode" on page 28.

2 Configure host access if your IVR scripts use host access.
Refer to the *Media Processing Server Series COMMGR Reference Manual* and the *BCM-IVR Integration Supplement* for instructions on how to configure host access.

After you complete these two procedures you are ready to use PeriView, the IVR administration tool, to load and configure scripts. Go to "Launching an application in PeriView" on page 41.

For information about host access refer to the *Media Processor Server Series COMMGR Reference Manual* and the *BCM -IVR Integration Supplement*.

Enabling the Host Communication Access keycode

To enable the Host Communication Access keycode, complete the following procedure.

To enable the Host Communication Access keycode

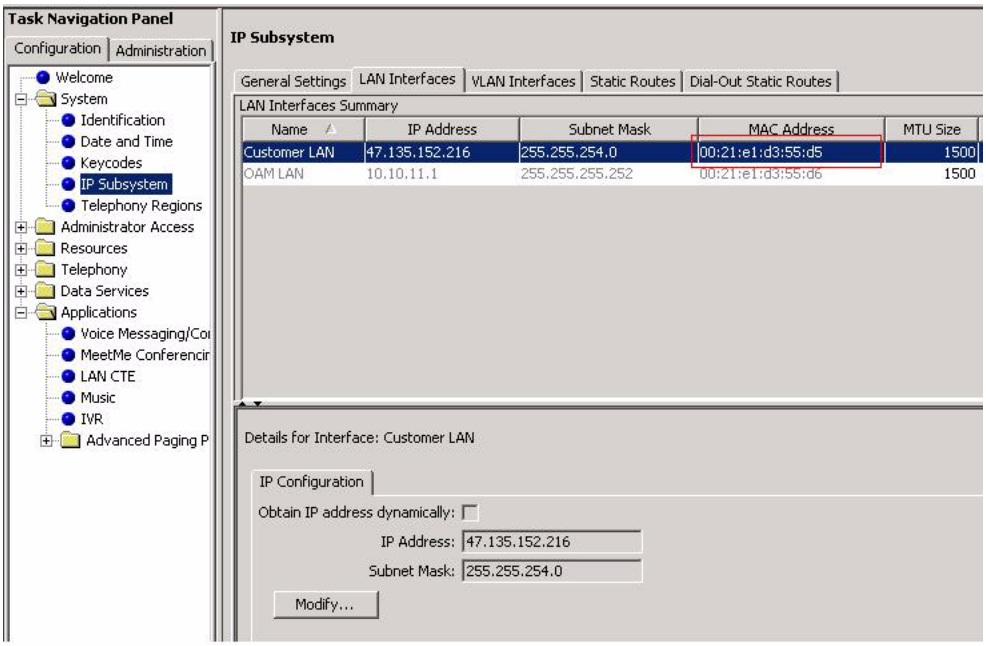
1 Retrieve the authorization number for Host Communications from the NTKC0098 documentation kit and the order code of the feature you want to enable (for example: geotel, iex, atte).

2 Record the Medial Control Address (MAC address) of the Avaya BCM. The MAC address is a hardware address that gives a unique identification to each node of a network.

a Log on to Business Element Manager.

b Open the **System** folder.

c Click **IP Subsystem** and select the **LAN Interfaces** tab.

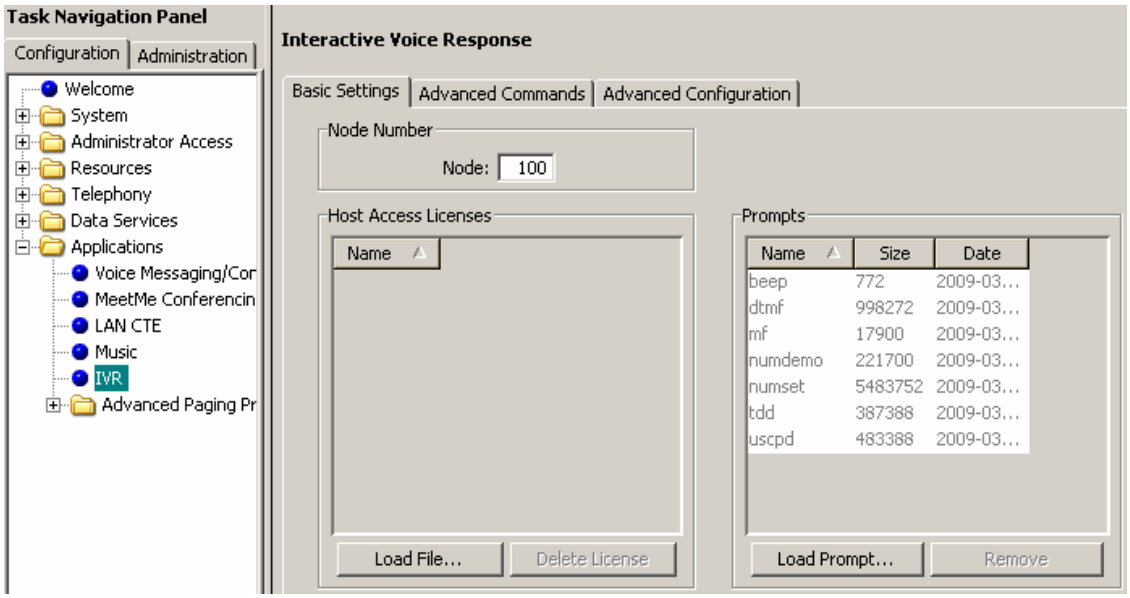


d Record the information that appears in the in the **Customer LAN MAC Address** field. This is the MAC address of your Avaya BCM.

3 Contact Avaya Support at www.avaya.com/support, and request assistance to produce an Avaya BCM Host Communication keycode (license file).

Provide the keycode support prime with the MAC address you obtained in step 2 and the Authorization number from the NTKC0098 documentation kit.

The Avaya support prime generates the keycode and sends it to you by e-mail. The file is too long to repeat over the telephone. The name of the file is *plservrc*, with no extension.



4 From the **Basics** tab in the **Host Access** area, click **Load File**.

A window opens to allow you to find the keycode that you received.

5 In the **Open** window, use the **Look in**, **File Name**, and **File of Type** fields to navigate to the *plservrc* file.

6 Click **Open**.

A progress bar appears as the keycode loads and IVR restarts.

To configure the Host Communication Access

1 Use TN3270 (TelNet 3270) to activate the host protocol, which is one of the host protocols IVR supports.

TN3270 is a client program that uses the TCP/IP networking protocol. TN3270 is widely used to connect a desktop computer to a mainframe or main server.

a From Business Element Manager **Task Navigation Panel**, open the **Applications** folder.

b Click **IVR**.

The Interactive Voice Response panel opens with the Basic Settings tab showing.

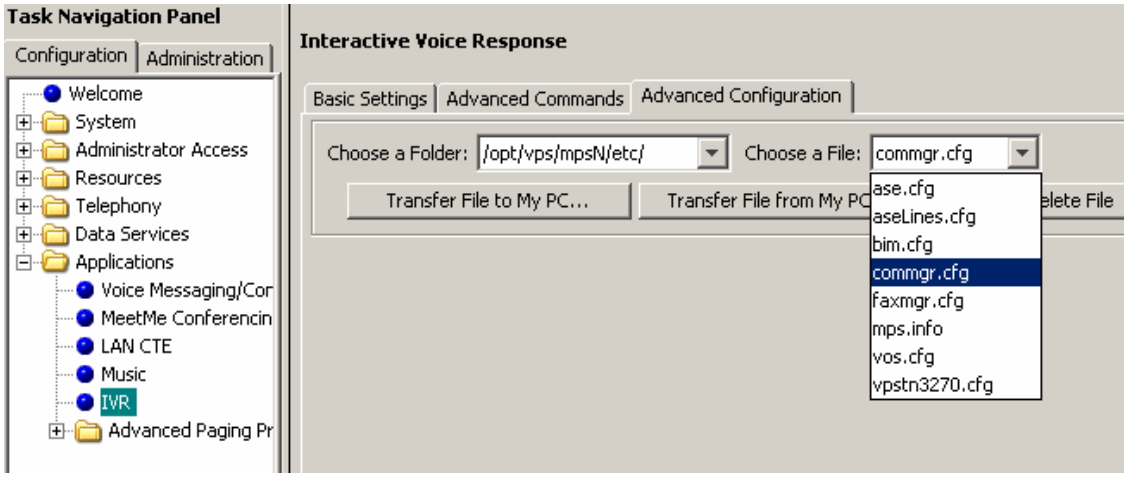
c Click the **Advanced Configuration** tab.

The Advanced Configuration tab appears.

d From the **Choose a Folder** pull-down list, and select the **/opt/vps/mpsN/etc/** folder.

e From the **Choose a File** pull-down list, verify that these files are present:

- commgr.cfg
- vos.cfg
- vpstn3270.cfg

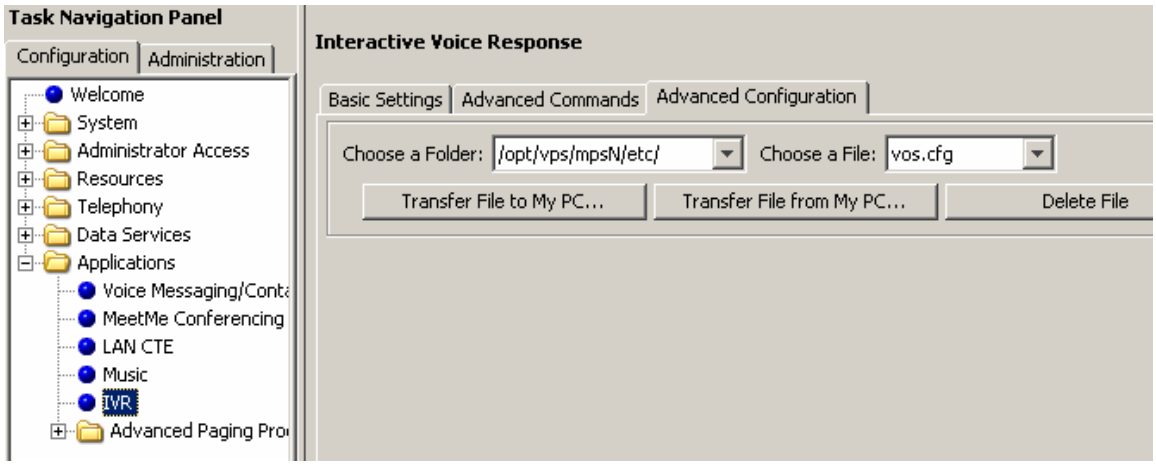


2 Use the **Advanced Configuration** tab to add the entries shown in bold to the **vos.cfg** file:

```
#
# Example vos.cfg file.
#
# NAMEHOSTPORTPRICOMMAND LINE
bim - 0 bim
vstat - - 0 vstat
commgr - - 0 commgr
vpstn3270 - - 0 vpstn3270
```

a In the **Advanced Configuration** tab, select the **/opt/vps/mpsN/etc/** folder from the **Choose a Folder** pull-down list.

b From the **Choose a File** pull-down list, select the **vos.cfg** file.



c Click **Transfer File to My PC**.

The Save window opens.

d In the **Save** window, navigate to where you want to save the **vos.cfg** file on your PC.

e In the **File Name** field type the file name you want to download (vos.cfg).

f Click **Save**.

The file saves to the location you specified.

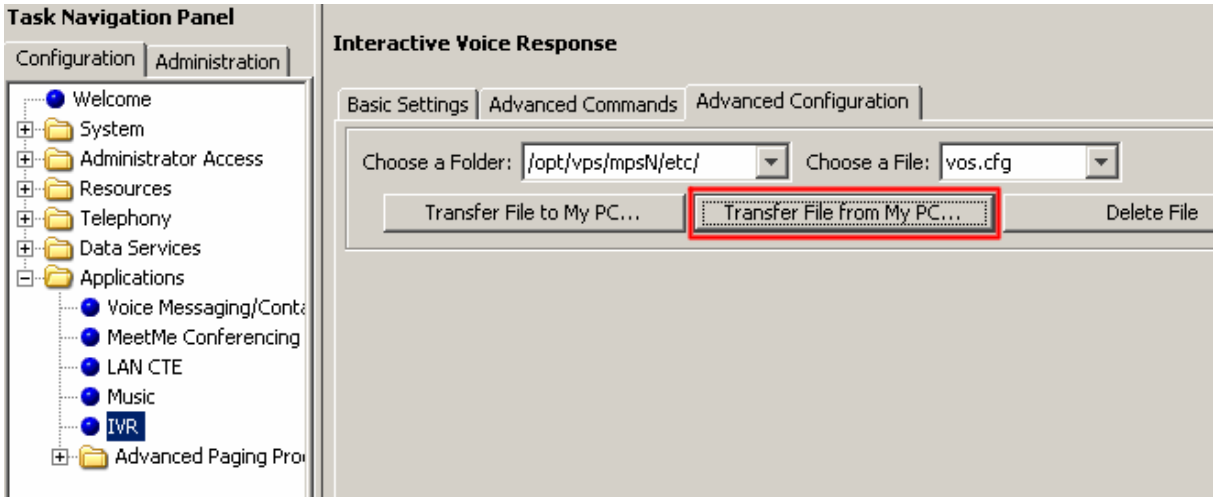
g Locate the file on your PC and open it in Wordpad.

h Notepad?

i Edit the file.

j Save your changes and close the file.

From the Business Element Manager, in the **Advanced Configuration** tab, click **Transfer File From my PC**.



The Save window opens.

k Navigate to the vos.cfg file and click **Load IVR Configuration**.

Note: Ensure that you save your changes in the **/opt/vps/mpsN/etc/** folder.

The edited file uploads to the Avaya BCM and appears as vos.cfg in the Choose a File pull-down list.

3 Use the **Advanced Configuration** tab to add the entries shown in bold to the **vpstn3270.cfg** file:

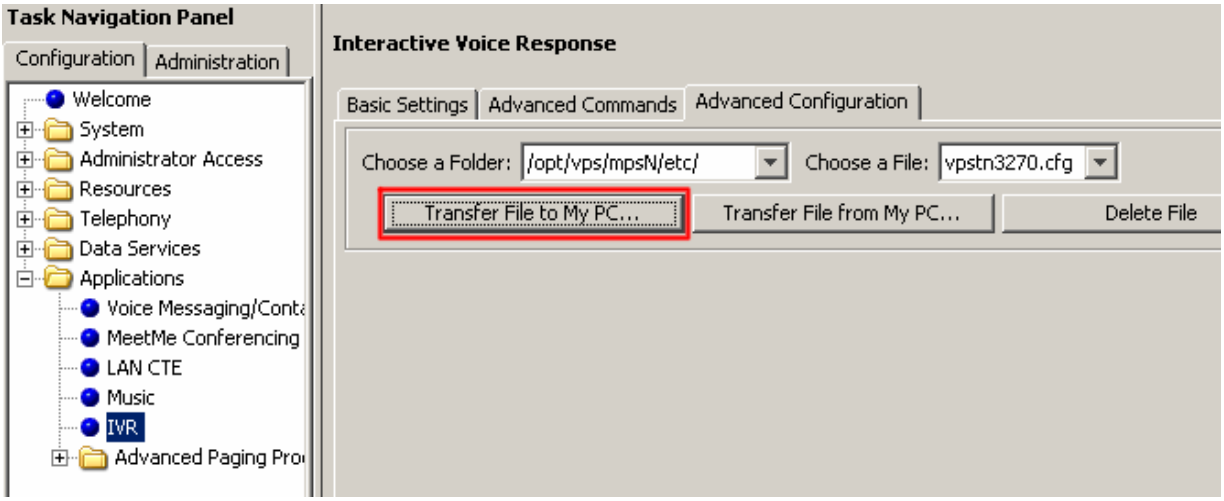
```
#
# vpstn3270 configuration File
#
# Example
#
maxvt 24
hostname falvmx
vt 1-24 ptelnet 1
port 23
init
```

Note: In the vpstn3270.cfg file enter the hostname and use default port 23 to connect to the remote TN3270 host. The parameter maxvt refers to total licensed Interactive Voice Response lines, which are 24 on an Avaya BCM. If you have Interactive Voice Response licenses for four ports, set your maxvt parameter between 1 and 4.

Note: The hostname falvmx is an example of a TN2370.

a In the **Advanced Configuration** tab, select the **/opt/vps/mpsN/etc/** folder from the **Choose a Folder** pull-down list.

b From the **Choose a File** pull-down list, select the **vpstn3270.cfg** file.



c Click **Transfer File to My PC**.

The Save window opens.

d In the **Save** window, navigate to where you want to save the **vpstn3270.cfg** file on your PC.

e In the **File Name** field type the file name you want to download (**vpstn3270.cfg**).

f Click **Save**.

The file saves to the location you specified.

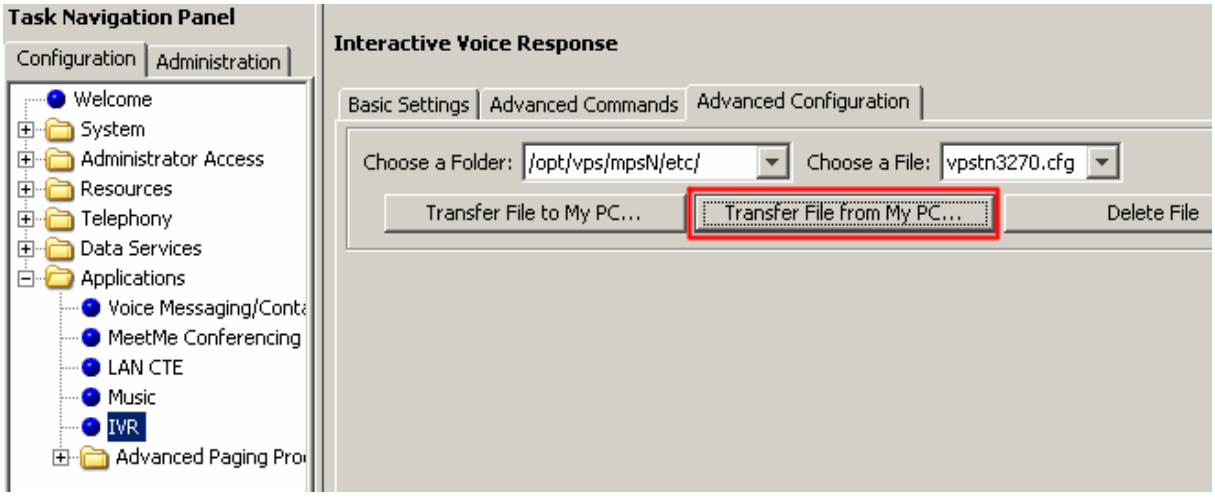
g Locate the file on your PC and open it in Wordpad.

h Edit the **vpstn3270.cfg** file.

i Save your changes and close the file.

j From the Business Element Manager, in the **Advanced Configuration** tab, click **Transfer File From my PC**.

The Save window opens.



k Navigate to the **vpstn3270.cfg** file and click **Load IVR Configuration**.

Note: Ensure that you save your changes in the **/opt/vps/mpsN/etc/** folder.

The edited file uploads to the Avaya BCM and appears as vpstn3270.cfg in the Choose a File pull-down list.

4 Use the **Advanced Configuration** tab to edit the **commgr.cfg** file. In the **commgr.cfg** file, uncomment the host protocol entries for TN3270 as shown here:

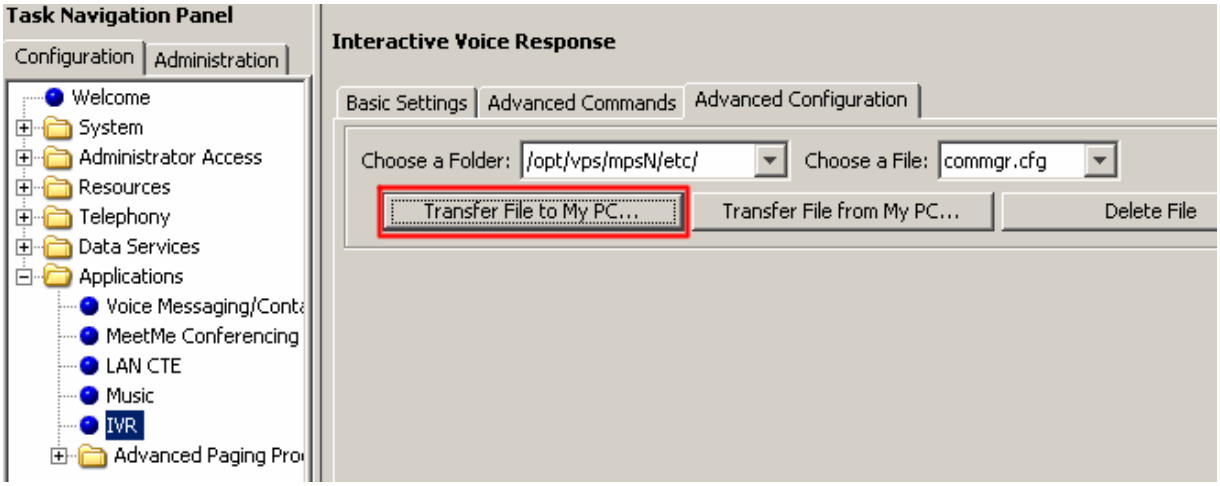
```
#
# VPS TN3270 Example
#
host 1 protocol vpstn3270
host 1 svcid 1-512 unassign
host 1 svcid 1-24 sess 1
host 1 svcid 1-24 assignvt 1
```

a In the **Advanced Configuration** tab, select the **/opt/vps/mpsN/etc/** folder from the **Choose a Folder** pull-down list.

b From the **Choose a File** pull-down list, select the **commgr.cfg** file.

c Click **Transfer File to My PC**.

The Save window opens.



d In the **Save** window, navigate to where you want to save the **commgr.cfg** file on your PC.

e In the **File Name** field type the file name you want to download (**commgr.cfg**).

f Click **Save**.

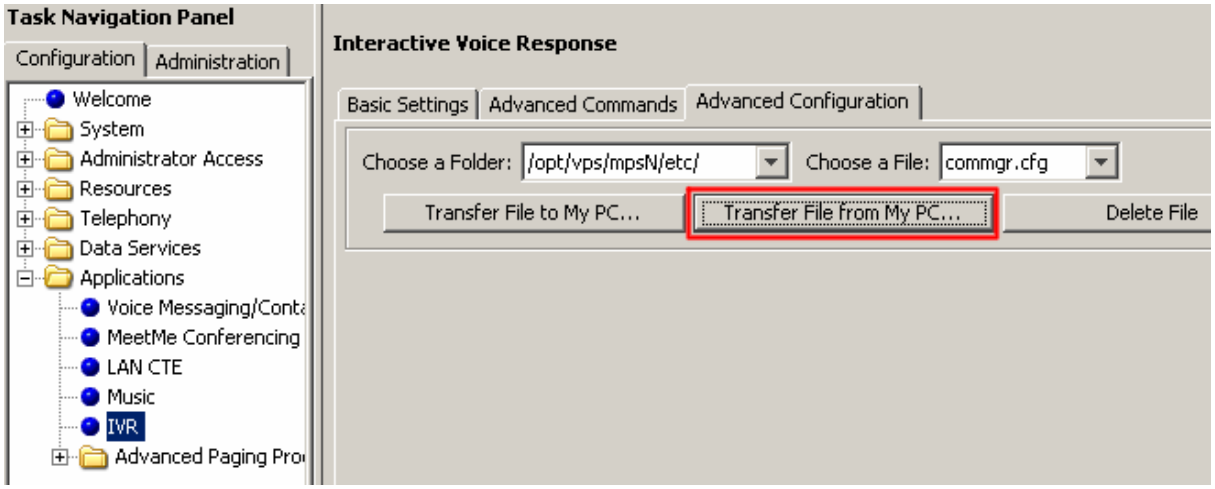
The file saves to the location you specified.

g Locate the file on your PC and open it in Wordpad.

h Uncomment the host protocol entries for TN3270

i Save your changes and close the file.

j From the Business Element Manager, in the **Advanced Configuration** tab, click **Transfer File From my PC**.



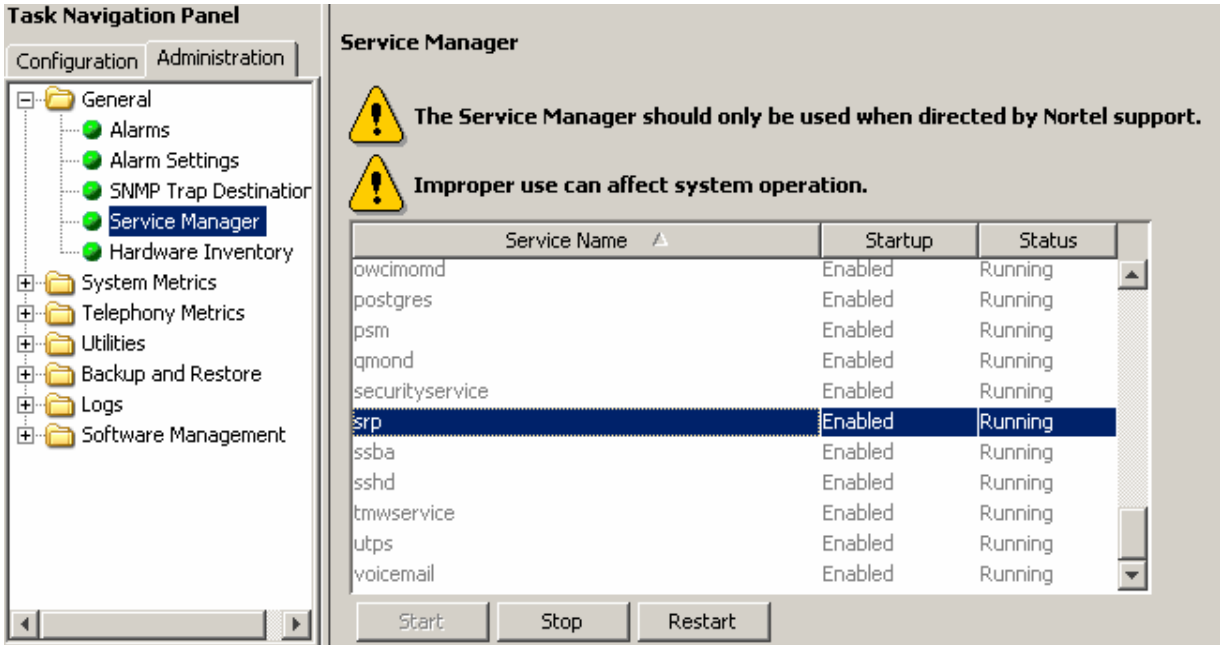
The Save window opens.

k Navigate to the **commgr.cfg** file and click **Load IVR Configuration**.

Note: Ensure that you save your changes in the **/opt/vps/mpsN/etc/** folder.

The edited file uploads to the Avaya BCM and appears as commgr.cfg in the Choose a File pull-down list.

5 In Business Element Manager, use the Service Manager to stop and start the IVR service.



This activates host communications for TN3270 on an Avaya BCM, according to the protocol configuration files you defined.

Complete the procedure "To stop, start, or restart IVR service" on page 55 to verify that the IVR services are running.

If the services are running, return to the IVR application in the Configuration tab.

For each service that is not running, click Restart.

6 Use the IVR **Advanced Commands** to verify that the HOST-specific processes are up and running.

a From Business Element Manager **Task Navigation Panel**, open the **Applications** folder.

b Click **IVR**.

The Interactive Voice Response panel opens with the Basic Settings tab showing.

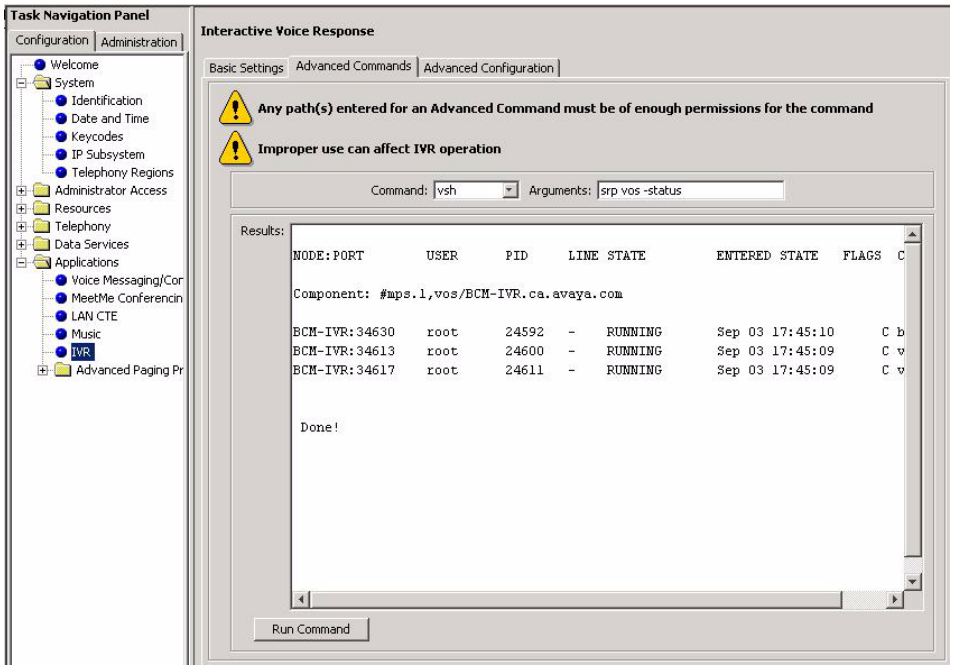
c Click the **Advanced Commands** tab.

The Advanced Commands tab appears.

d From the **Command** pull-down list, select the **vsh** command.In the **Arguments** field, type the arguments you want to add to the **vsh** command (**srp vos -status**).

e Click **Run Command**.

The output appears in the Results panel.



7 Ensure that the host lines have been allocated licenses.

a From Business Element Manager **Task Navigation Panel**, open the **Applications** folder.

b Click **IVR**.

The Interactive Voice Response panel opens with the Basic Settings tab showing.

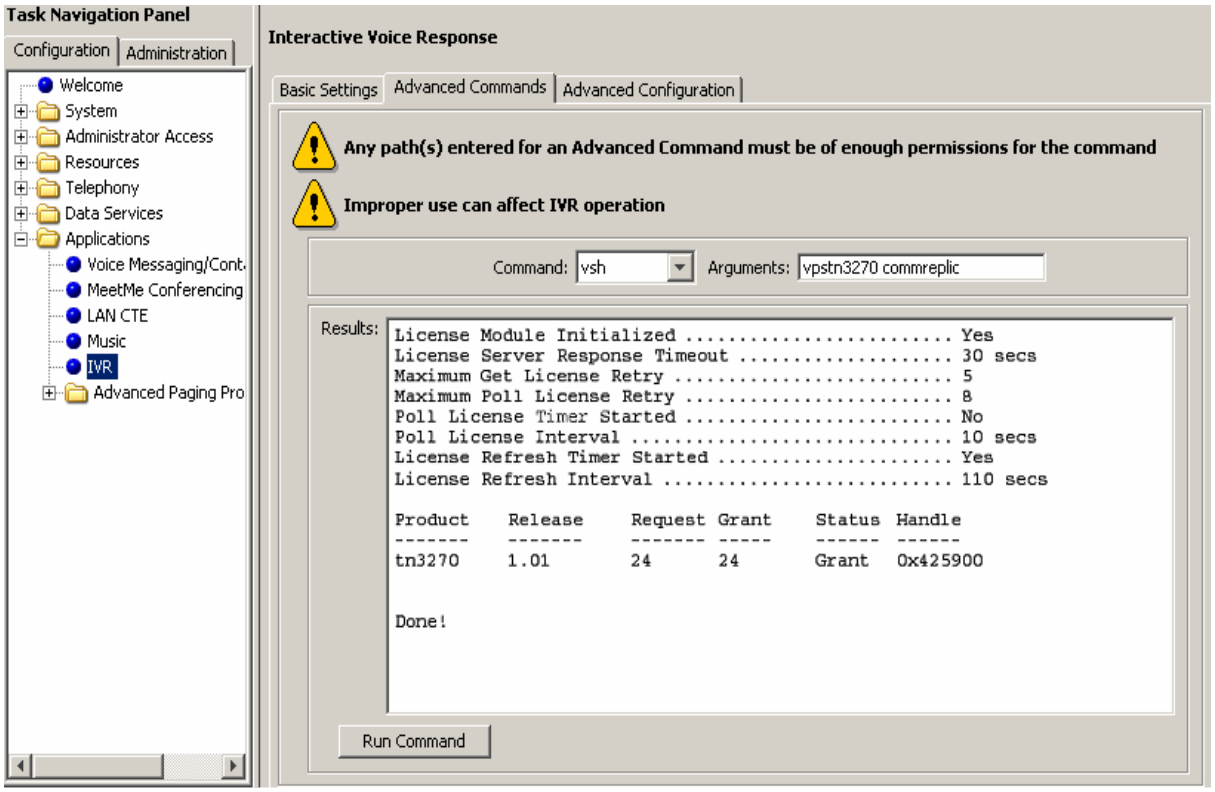
c Click the **Advanced Commands** tab.

The Advanced Commands tab appears.

d From the **Command** pull-down list, select the **vsh** command.In the **Arguments** field, type the arguments you want to add to the **vsh** command (**srp vos -commreplic**).

e Click **Run Command**.

The output appears in the Results panel.



8 From VSH, connect line 1 to Host. Ensure that data can be read from the remote host on the connected line.

a From Business Element Manager **Task Navigation Panel**, open the **Applications** folder.

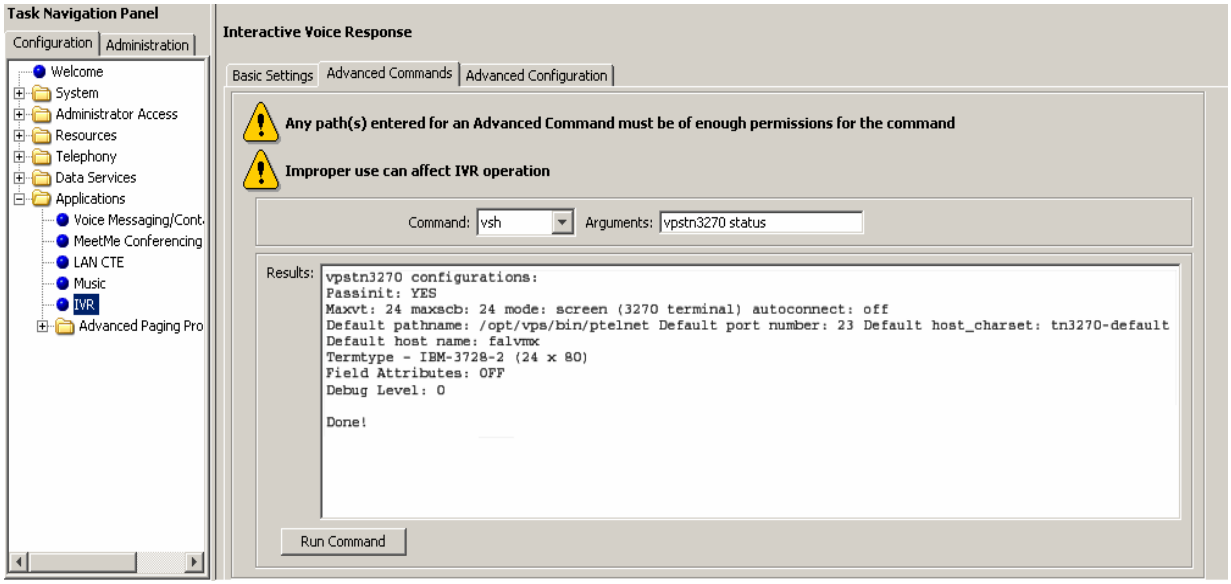
b Click **IVR**.

The Interactive Voice Response panel opens with the Basic Settings tab showing.

c Click the **Advanced Commands** tab.

The Advanced Commands tab appears.

d From the **Command** pull-down list, select the **vsh** command.



e In the **Arguments** field, type the arguments you want to add to the **vsh** command (**srp vos -status**).

f Click **Run Command**.

The output appears in the Results panel.

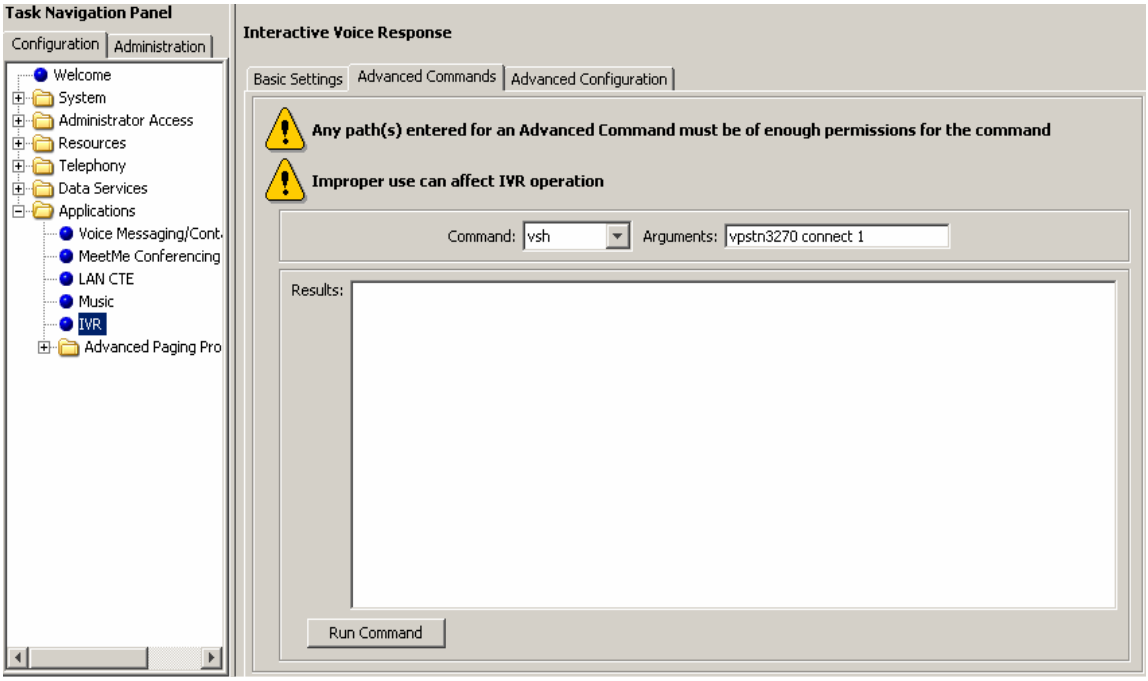
9 Use the IVR **Advanced Commands** to verify that the Host-specific processes are up and running.

a From the **Interactive Voice Response** panel, select the **Advanced Commands** tab.

The Advanced Commands tab appears.

b From the **Command** pull-down list, select the **vsh** command.

c Connect line 1 to the Host and check that data can be read from the remote host on the connected line.



d In the **Arguments** field, type the arguments you want to add to the **vsh** command (shown in bold in the output in substep e, for example, vpstn3270 connect 1 [where 1 is the node number of your Avaya BCM]).

e Click **Run Command**.

The output appears in the Results panel.

Launching an application in PeriView

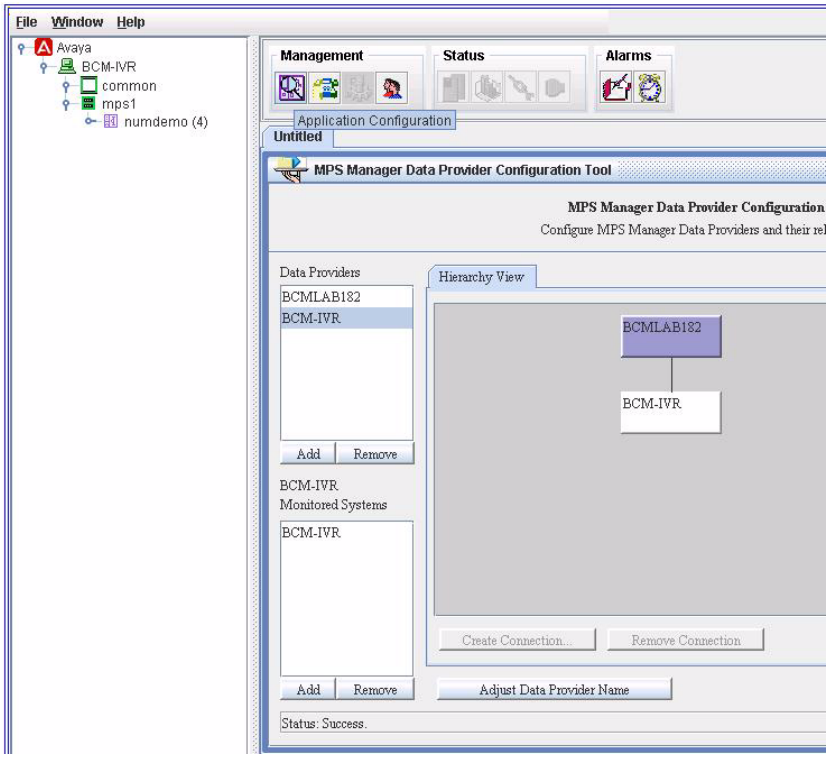
In Internet Explorer, go to http:\\<ip of PeriView Consolidator>\periview\periview.html.

Before you launch an application in PeriView, ensure that all system connections are established and running. All elements of the system, such as Avaya BCMs and the Windows host workstation, appear as green icons in the left hand window of the PeriView launch screen.

To launch an application in PeriView

1. Ensure Windows host SRP is up using **Settings > Control Panel > Services > Services Startup**.
2. Launch PeriView.

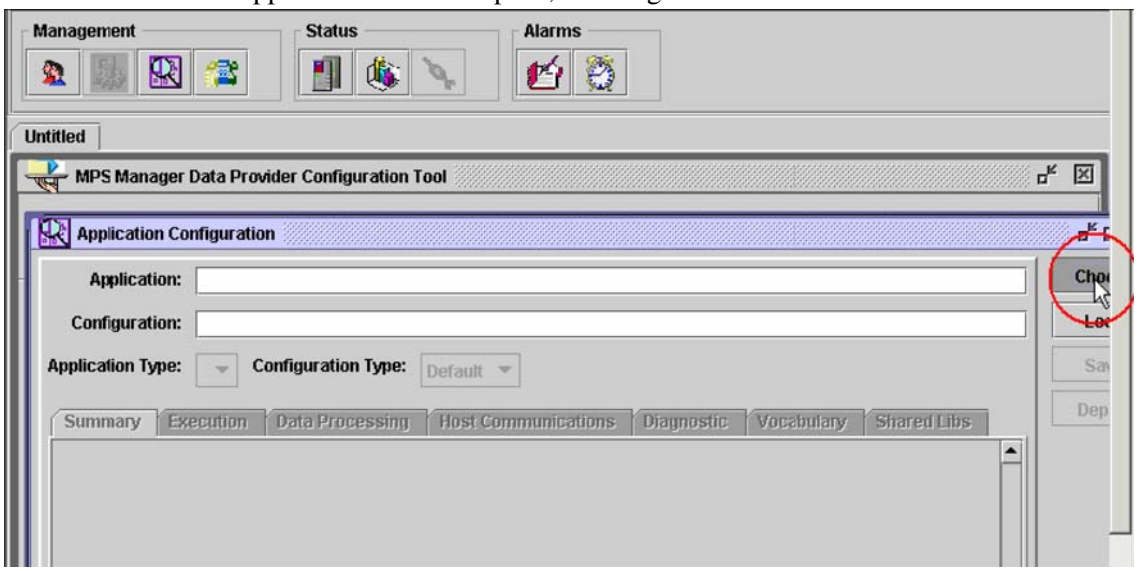
3 In the PeriView launch screen, click **Application Configuration** to start the IVR setup.



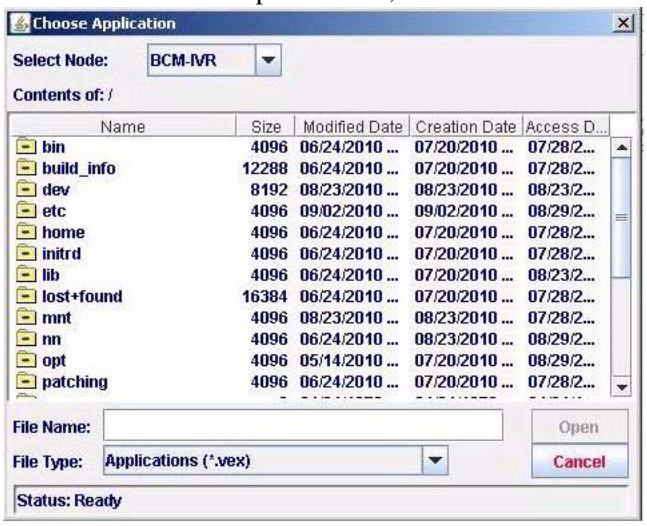
The Windows host workstation is BCM-IVR. The icon representing the host workstation is green in the left hand window of the PeriView launch screen.

4 Click **Choose**.

The Choose Application window opens, showing folders on the selected node.

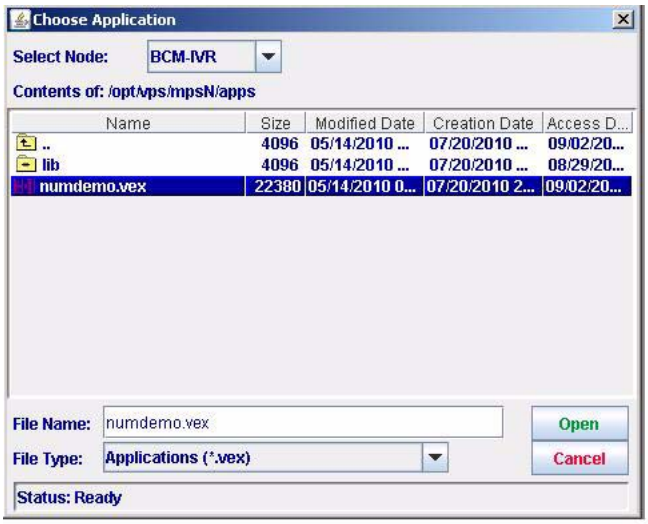


5 From the **Select Node** drop-down list, select the Windows host.



6 Browse the .vex folder.

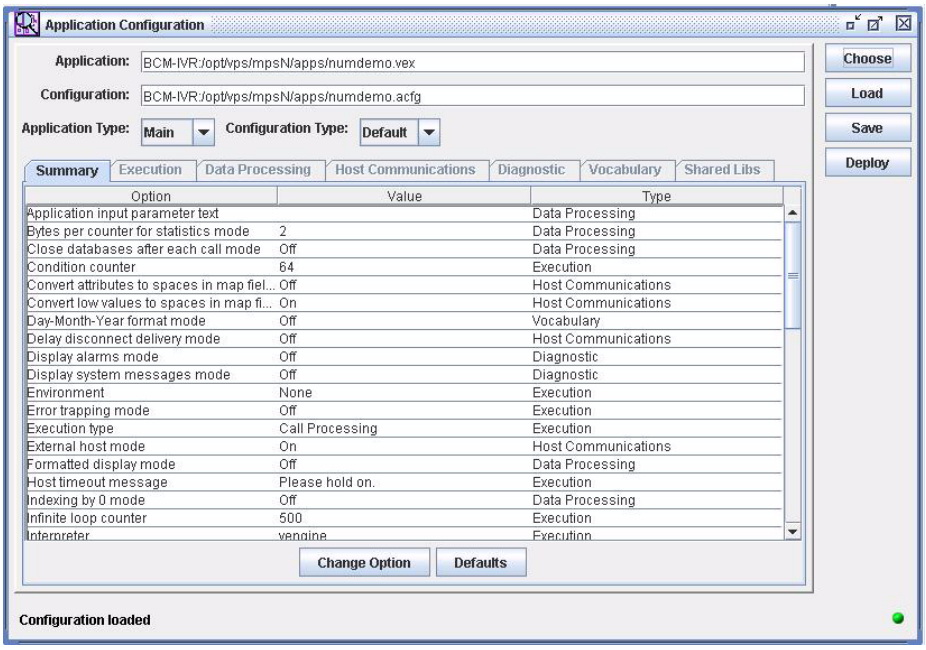
The .vex folder is located in `/opt/vps/mpsN/apps` and contains only one application (`numdemo.vex`). Files with .vex extensions are the compiled output of PERIproducer source files.



7 Select the .vex file you want to use.

8 Click **Load**.

9 Click **Save**.



Note: PeriView automatically creates the .acfg file when a .vex file is loaded to the Application Configuration utility.

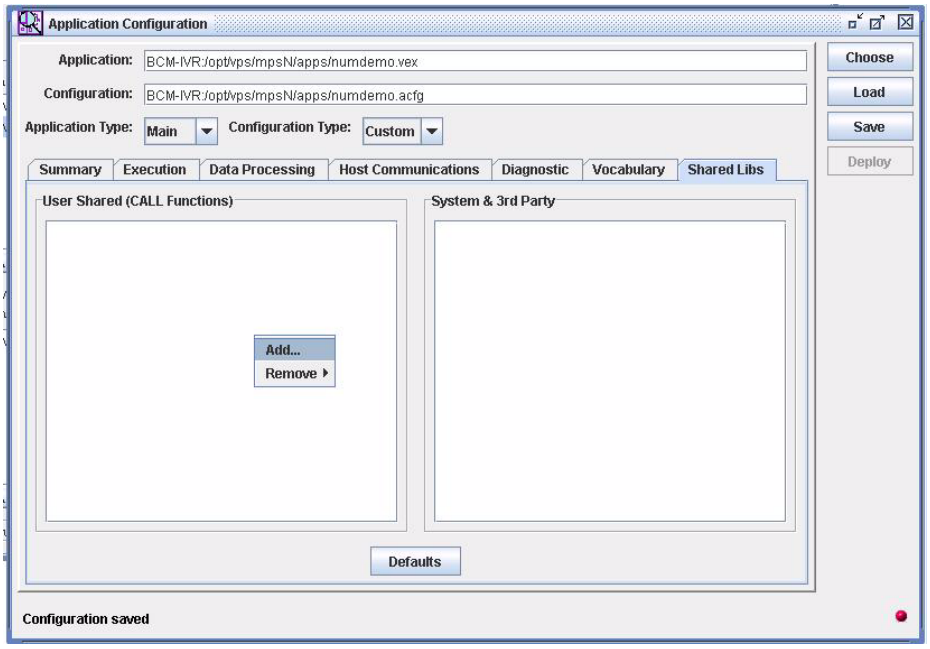
Note: You cannot have two MPS components with the same component number on the same network.

10 To load C/C++ Call Function files (for example, files with .so extensions), click **Change Option**.

11 Click **Add.**

12 Browse the Windows host folder in which .so files are located and select the .so file you want to use.

The selected .so file is generated on the Fedora NCGL workstation and sent to the Windows host for transfer to the Avaya BCM.

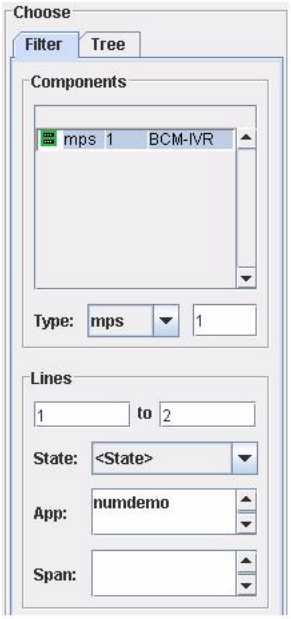


13 Click **Save and Deploy** to assign the .so file to the Avaya BCM.

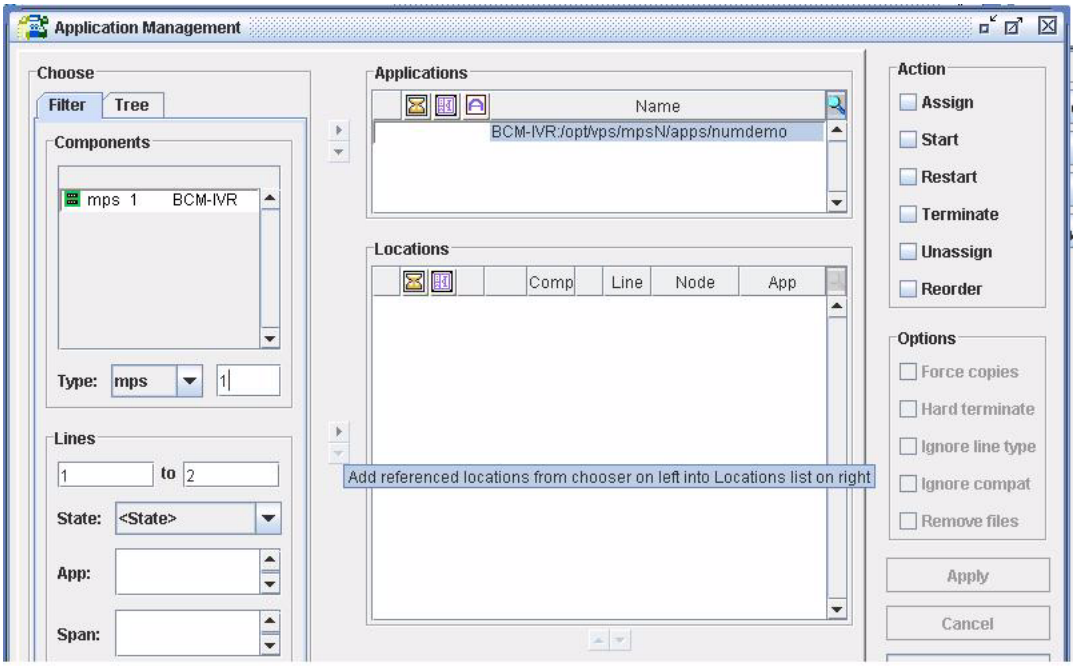
14 Return to the PeriView launch screen and click **Application Management**.

The Application Management window opens.

15 In the **Choose** area of the **Application Management** window, select the MPS nodes and line numbers you want to use.



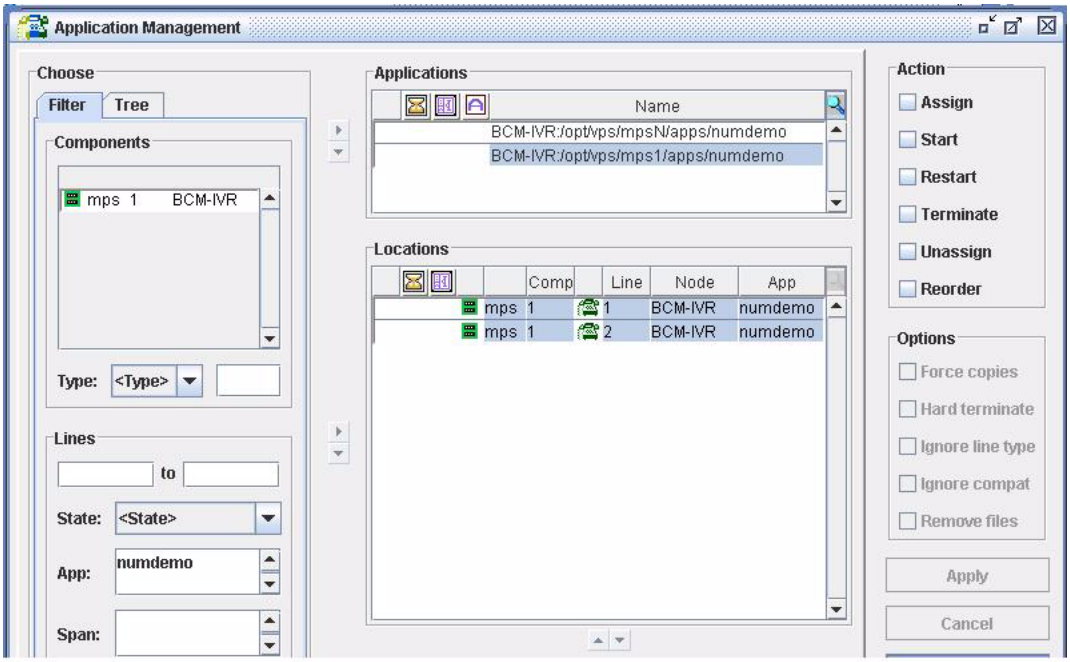
16 Click the **>** button between the **Choose** panel and the **Locations** panel.



17 In the right panel of the window, select the **Assign** and **Start** check boxes.

18 Click **Apply** to activate the selected application to the desired Avaya BCM ports.

In the following example, the numdemo application has been activated on the BCM/IVR ports 1 through 2. When the applications are up and running, the icons are green.



19 To validate the IVR application, use any phone connected to your Avaya BCM system to call the IVR DN.

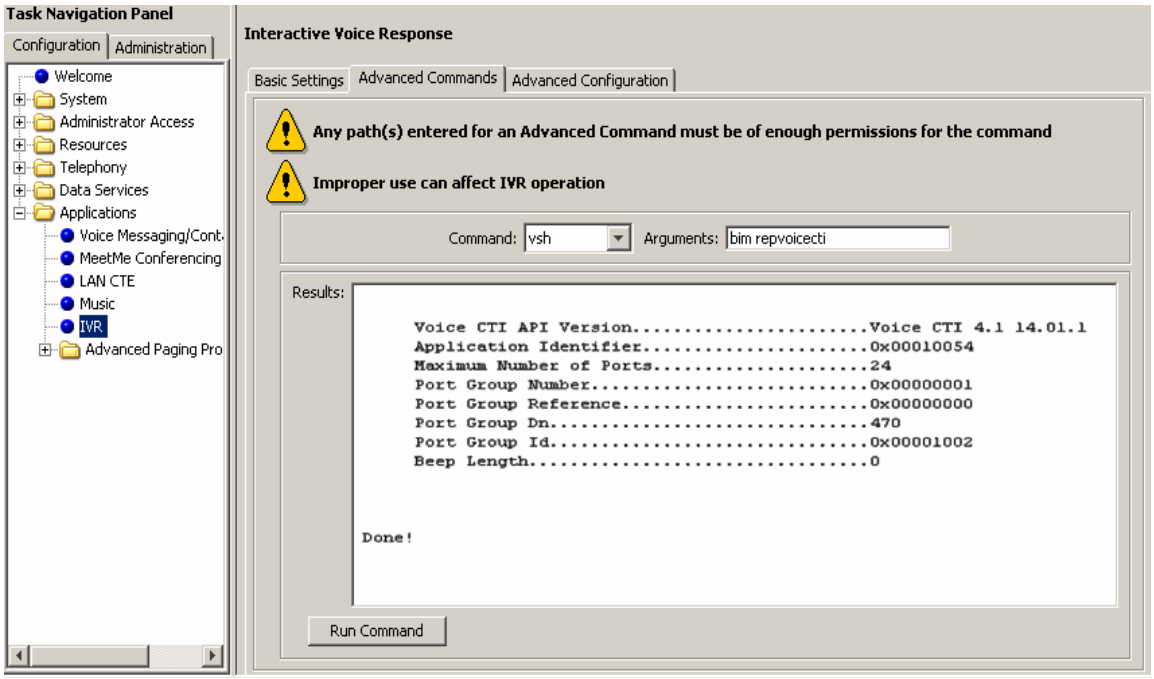
Note: To obtain the IVR DN, use the vsh command (as shown in this example).

a From the **Interactive Voice Response** panel, select the **Advanced Commands** tab.

The Advanced Commands tab appears.

b From the **Command** pull-down list, select the **vsh** command.

c In the **Arguments** field, type the arguments you want to add to the **vsh** command (**bim repvoicecti**).



d Click **Run Command**.

The output appears in the Results panel.

The IVR DN appears in the Port Group DN line of the output.

Dialing the IVR extension

You can use Feature 985 to see what the IVR extension is. Dial this extension to confirm that the appropriate IVR script answers the call.

To dial the IVR extension

1 On a one-line or two-line display telephone connected to your Avaya BCM system, press **FEATURE 985**.

The display shows the Voicemail extension.

2 Press the **NEXT** soft key or the pound key (**#**) to view the IVR extension.

The display shows the IVR extension.

3 Dial the IVR extension and check that the script answers the call.

Note: You can program the IVR extension to be any extension on an Avaya BCM (for example, the prime is set for trunks, ringing sets for Night Service, or for CFNA sets). For information about changing extensions, see the *Avaya BCM450 Administration and Security* (NN40160-601).

If you change the IVR extension, you must restart IVR. Complete the procedure "To stop, start, or restart IVR service" on page 55 to restart IVR service .

Assigning lines to IVR

You can assign which lines answer IVR calls. To assign multiple lines, go to "To assign multiple lines to IVR" on page 50.

To assign lines to IVR

1 Launch and log on to the Business Element Manager.

The Business Element Manager opens with the Task Navigation Panel open.

2 From the **Configuration** tab, open the **Application** folder.

3 Click **Voice Messaging/Contact Center**.

The Voice Messaging/Contact Center panel appears.

4 Click **Launch CallPilot Manager**.

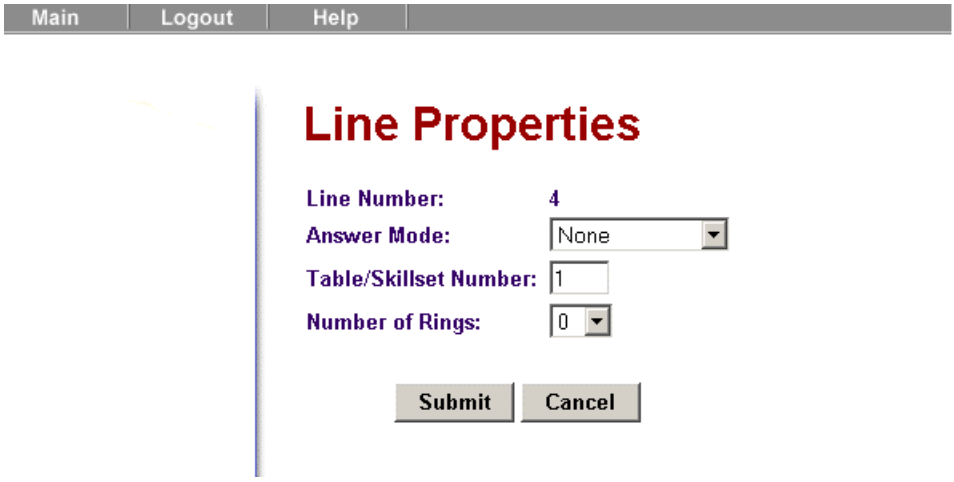
The CallPilot Manager Main Menu opens in your web browser.

5 Click **Auto Attendant**.

The Lines Administration page appears.

6 Click the **Change** link for the line you want to assign to IVR.

The Line Properties page opens.



7 From the **Answer Mode** list box, select **IVR**.

8 From the **Number of rings** list box select the number of rings you want there to be before IVR answers.

You must select a number from 0 to 12. If you set the number to less than 2, Caller ID information cannot be passed to IVR for analog lines.

9 Click **Submit**.

To assign multiple lines to IVR

1 Launch and log on to the Business Element Manager.

The Business Element Manager opens with the Task Navigation Panel open.

2 From the **Configuration** tab, open the **Applications** folder.

3 Click **Voice Messaging/Contact Cente**r.

The Voice Messaging/Contact Center panel appears.

4 Click **Launch CallPilot Manager**.

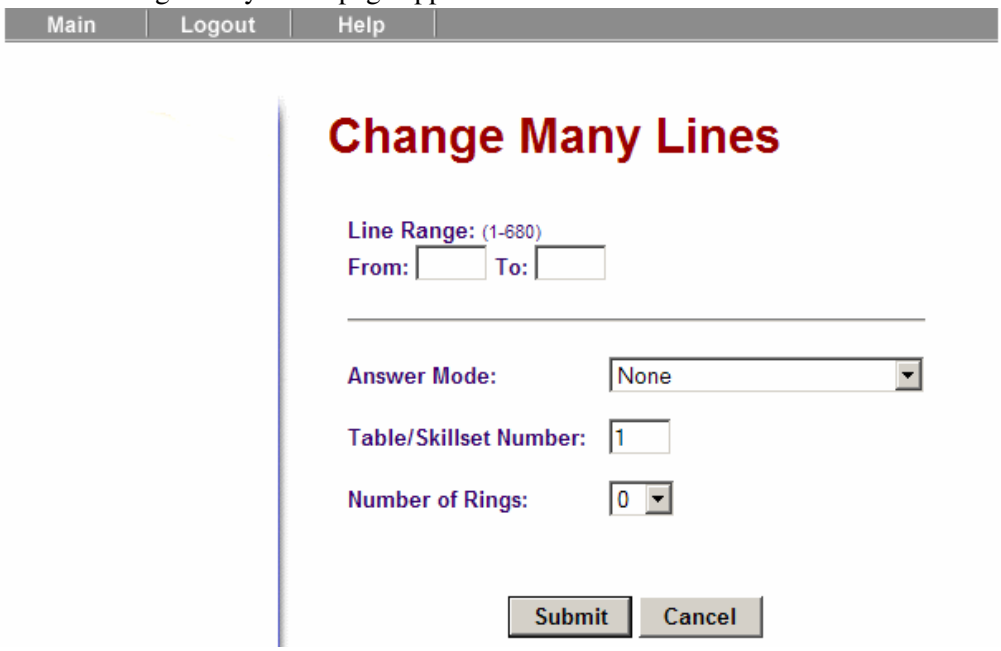
The CallPilot Manager Main Menu opens in your web browser.

5 Click **Auto Attendant**.

The Lines Administration page appears.

6 Click **Change Many Lines**.

The Change Many Lines page appears.



7 In the **From** field, type the number of the first line to add.

8 In the **To** field, type the number of the last line to add.

9 From the **Answer Mode** list box, select **IVR**.

10 From the **Number of rings** pull-down list, select the number of rings before IVR answers.

You must select a number from 0 to 12. If you set the number to less than 2, Caller ID information cannot be passed to IVR.

11 Click **Submit**.

Viewing or changing the system fax name

When IVR sends a fax, it uses the system fax name that is programmed in CallPilot Manager. The system name transmits to external fax machines as the station ID of the site. Many fax machines show this value when transmitting or receiving, and record it in transmission logs. If you have not entered a system name, no station ID is sent.

The system name can be a maximum of 16 characters. You can use your main fax number as the system name.

To view or change the system fax name

1 Launch and log on to the Business Element Manager.

The Business Element Manager opens with the Task Navigation Panel open.

2 From the **Configuration** tab, open the **Application** folder.

3 Click **Voice Messaging/Contact Center**.

The Voice Messaging/Contact Center panel appears.

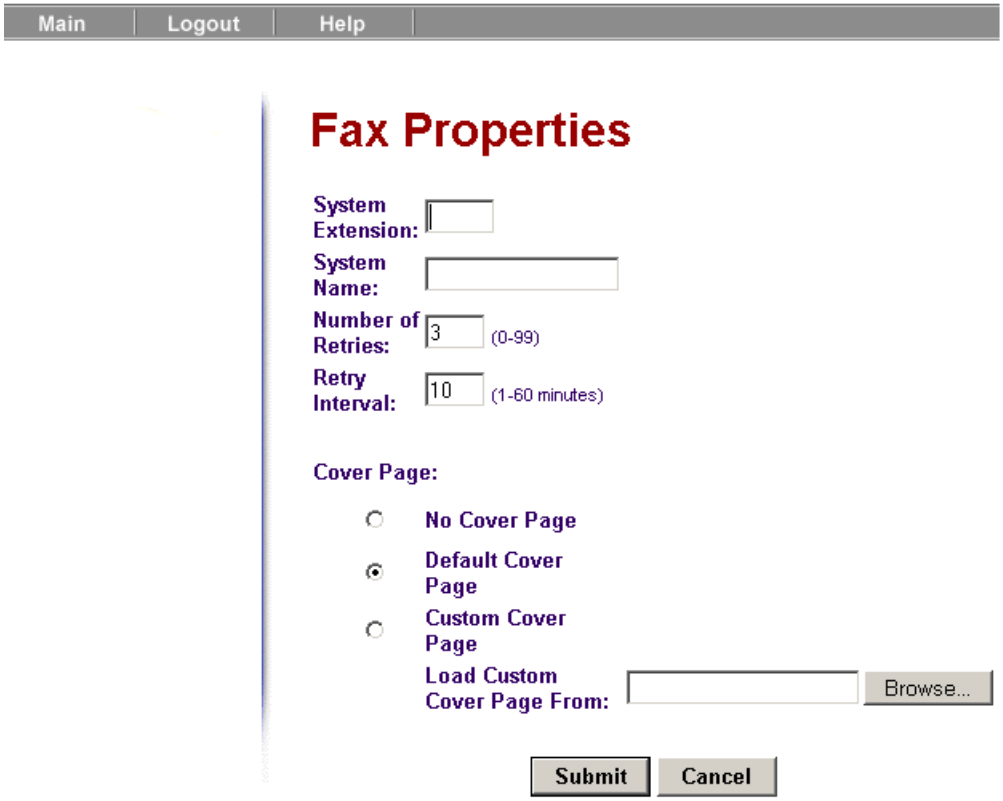
4 Click **Launch CallPilot Manager**.

The CallPilot Manager Main Menu opens in your web browser.

5 Click **Configuration**.

6 Click **Fax Properties**.

The Fax Properties web page opens.



Note: This page can appear different, depending on your system information.

7 To change the system fax name, in the **System Name** field enter a name for your IVR system.

The name can be a maximum of 16 characters.

Chapter 3
Administering Interactive Voice Response

This chapter contains the following information about how to administer the IVR application on your Avaya Business Communications Manager (Avaya BCM) system:

- Stopping, starting, or restarting IVR service
- Uninstalling PERI packages for BCM/IVR 1.x automatically
- IVR logs
- IVR guides
- IVR group privileges

Stopping, starting, or restarting IVR service

There are three IVR services:

- plicd: the IVR license server

  The plicd service stops and starts automatically when a backup and restore activity occurs or when a new license is downloaded. The plicd service does not run when there is no license present.

- mmdp: the IVR PeriView server

  The mmdp service stops and restarts automatically when a backup and restore activity occurs, when IVR prompts are added or removed, or when a node number is changed.

- srp: the IVR Runtime engine

  The srp service stops and restarts automatically when a backup and restore activity occurs, when IVR prompts are added or removed, or when a node number is changed.

To stop, start, or restart IVR service

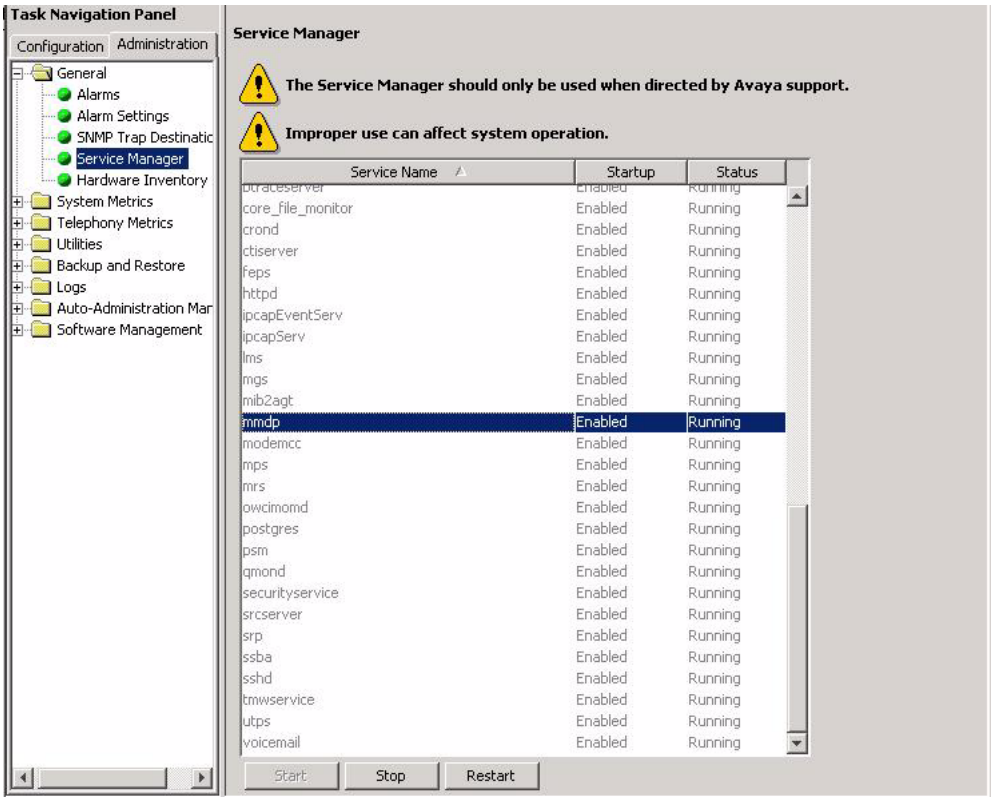
1 Launch and log on to Business Element Manager.

  The Business Element Manager opens, showing the Task Navigation Panel.

2 From the **Administration** tab, open the **General** folder.

3 Click **Service Manager**.

The Service Manager panel appears.



4 Select one of the following IVR files from the **Service Name** column:

- plicd (only available if a Host Access license was purchased)
- mmdp
- srp

The Start, Stop, and Restart buttons become available.

5 Click the appropriate button to start, stop, or restart the selected service.

Uninstalling PERI packages for BCM/IVR 1.x automatically

If BCM/IVR 1.x is already on the Windows workstation, complete the following procedure to remove the BCM/IVR 1.x PERI packages before you install BCM/IVR 2.1.

To uninstall PERI packages with the MPS 2.1 Software and Document CD:

1. Select **Start** > **Settings** > **Control Pane**l > **Add or Remove Programs** and remove all PERI applications.
2. Reboot the system,

Using IVR Basic Settings

You can manage IVR integration using the Business Element Manager. From the Applications folder in the Task Navigation Panel, you can navigate to the Interactive Voice Response panel. The Interactive Voice Response panel has three tabs:

- Basic Settings
- Advanced Commands
- Advanced Configuration

Use the Basic Settings tab to:

- change a node number (see "To change the node number" on page 13)
- load an IVR keycode file onto the Avaya BCM (see "To enable the Host Communication Access keycode" on page 28 and "To configure the Host Communication Access" on page 30)
- load or remove prompts (see "To upload IVR prompts" on page 26)

Using IVR Advanced Commands

Use the Advanced Commands tab on the Interactive Voice Response panel in Business Element Manager to execute advanced IVR commands.

Outputs from commands appear in the Results area of the Advanced Commands panel.

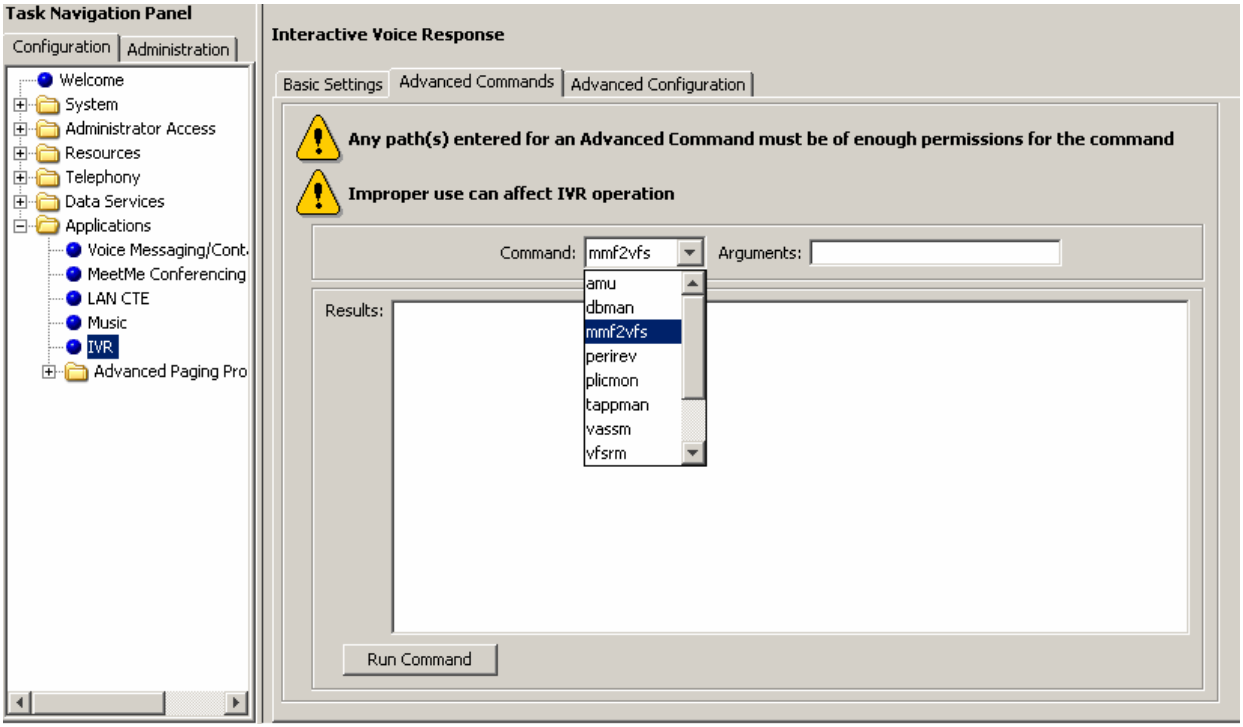
To execute an advanced IVR command

1. Launch and log on to Business Element Manager.

   The Business Element Manager opens, showing the Task Navigation Panel.
2. From the **Configuration** tab, open the **Applications** folder.
3. Click **IVR**.

   The Interactive Voice Response panel appears with the Basic Settings tab showing.

4 Select the **Advanced Commands** tab.



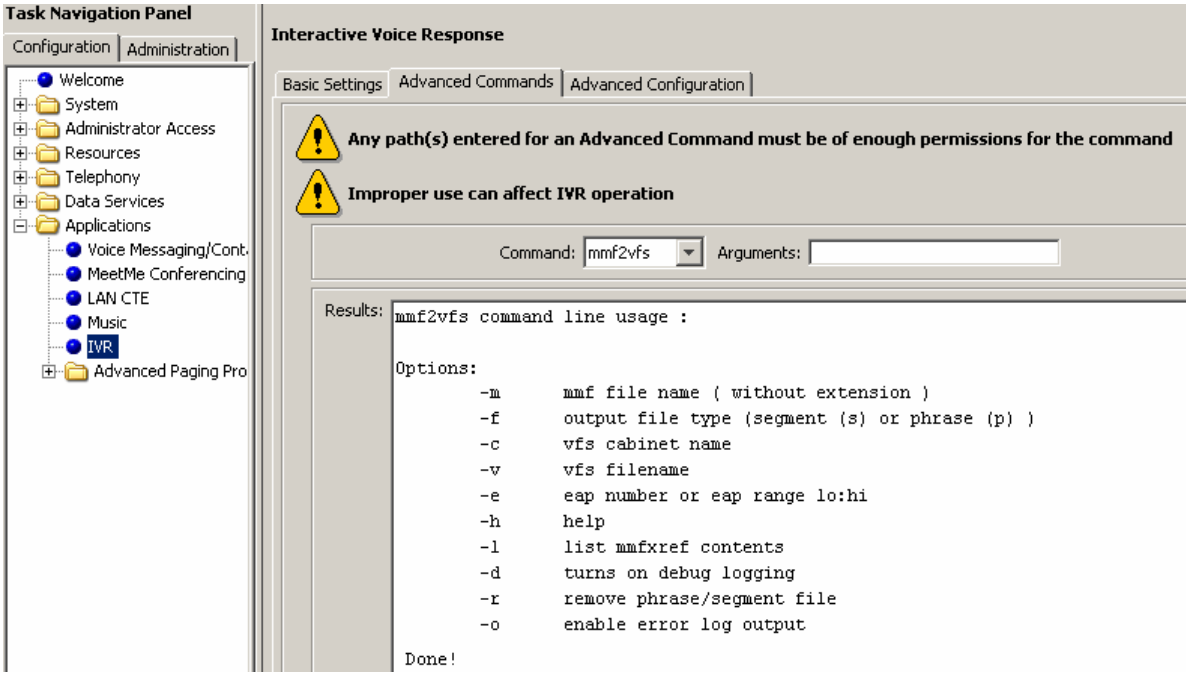
5 From the **Commands** pull-down list, select the command you want to execute.

6 In the **Arguments** field, enter any arguments required by the command you selected.

Note: If you leave the Arguments field blank and click Run Command, a list of arguments appears in the Results area (for those commands that require arguments).

7 Click **Run Command**.

The output appears in the Results area.



Note: The "Done!" string always appears at the end of the Results area.

Using IVR Advanced Configuration

Use the Advanced Configuration tab on the Interactive Voice Response panel in Business Element Manager to carry advanced IVR configuration actions. From the Advanced Configuration tab you can transfer, from your Avaya BCM, files that require configuring, edit the files on a PC, then transfer the files back to the Avaya BCM. The files that you can transfer and edit in this manner can be found only in specific IVR folders.

If you must upload new configuration files to the Avaya BCM, you can transfer them to these folders only.

To use advanced IVR configuration

1 Launch and log on to Business Element Manager.

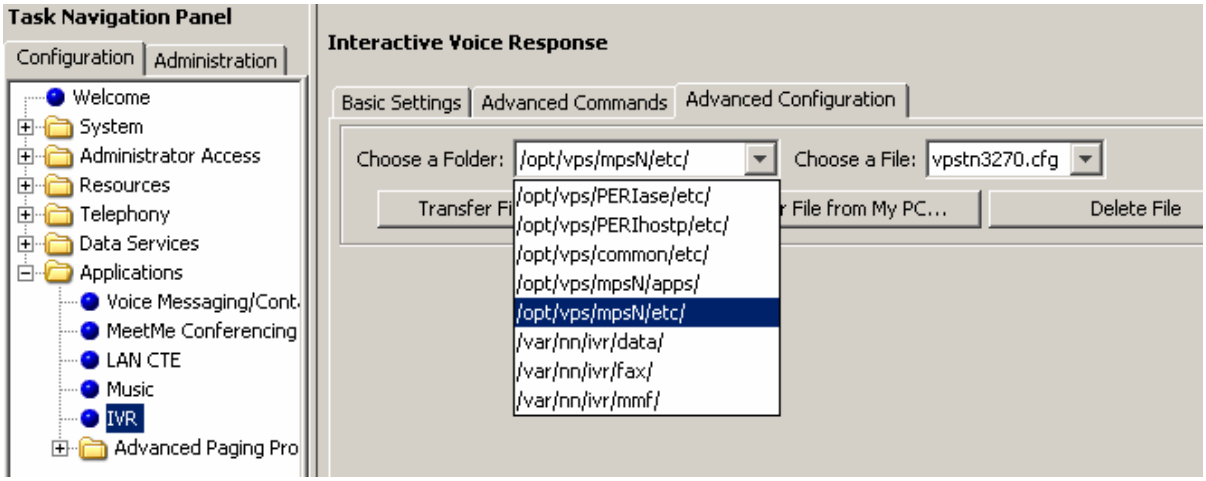
The Business Element Manager opens, showing the Task Navigation Panel.

2 From the **Configuration** tab, open the **Applications** folder.

3 Click **IVR**.

The Interactive Voice Response panel appears with the Basic Settings tab showing.

4 Select the **Advanced Configuration** tab.



5 From the **Choose a Folder** pull-down list, select the folder from which you want to retrieve a a file to edit.

The files available in the selected folder appear in the Choose a File pull-down list.

6 From the **Choose a File** pull-down list, select a file to edit.

7 Click **Transfer File to My PC**.

The file transfers to your PC, where you can now configure it.

8 When you finish editing the file, close the file.

9 From the **Advanced Configuration** tab in Business Element Manager, select the folder and file you are replacing.

10 Click **Transfer File from My PC**.

A window opens in which you can specify the path to the configured file.

11 Use the **Look In**, **File Name**, and **File Type** fields to specify the path on your PC to the configured file.

12 Click **Open**.

The file transfers from your PC to the folder you selected in the Choose a Folder pull-down list.

Warning: Removing files could cause IVR to stop running as expected.

13 Click **Delete File** to remove the selected file from the Avaya BCM.

Backing up and restoring IVR

You can protect your IVR files by backing them up using the Backup and Restore utility (BRU). IVR service stops during a backup and restore.

The IVR configuration maybe backed up separately. If the IVR data needs to be backed up, then Voice Mail data will also be backed up (and vice-versa). When backing up the data, the configuration will also be backed up automatically. The IVR data and configuration maybe restored separately. If the IVR data needs to be restored, then the IVR configuration, Voice Mail configuration and Voice Mail data will also be restored (and vice-versa).

For more information on back up and restore activities, refer to the *Avaya BCM450 Administration and Security* (NN40160-601)

IVR logs

All Avaya BCM Logs, including logs for IVR can be captured via the Business Element Manager. Diagnostic and Sensitive logs need to be collected when an IVR problem needs to be diagnosed. For details and procedures on how to manage, retrieve, and view logs from the Avaya BCM, see *Avaya BCM450 Administration and Security* (NN40160-601).

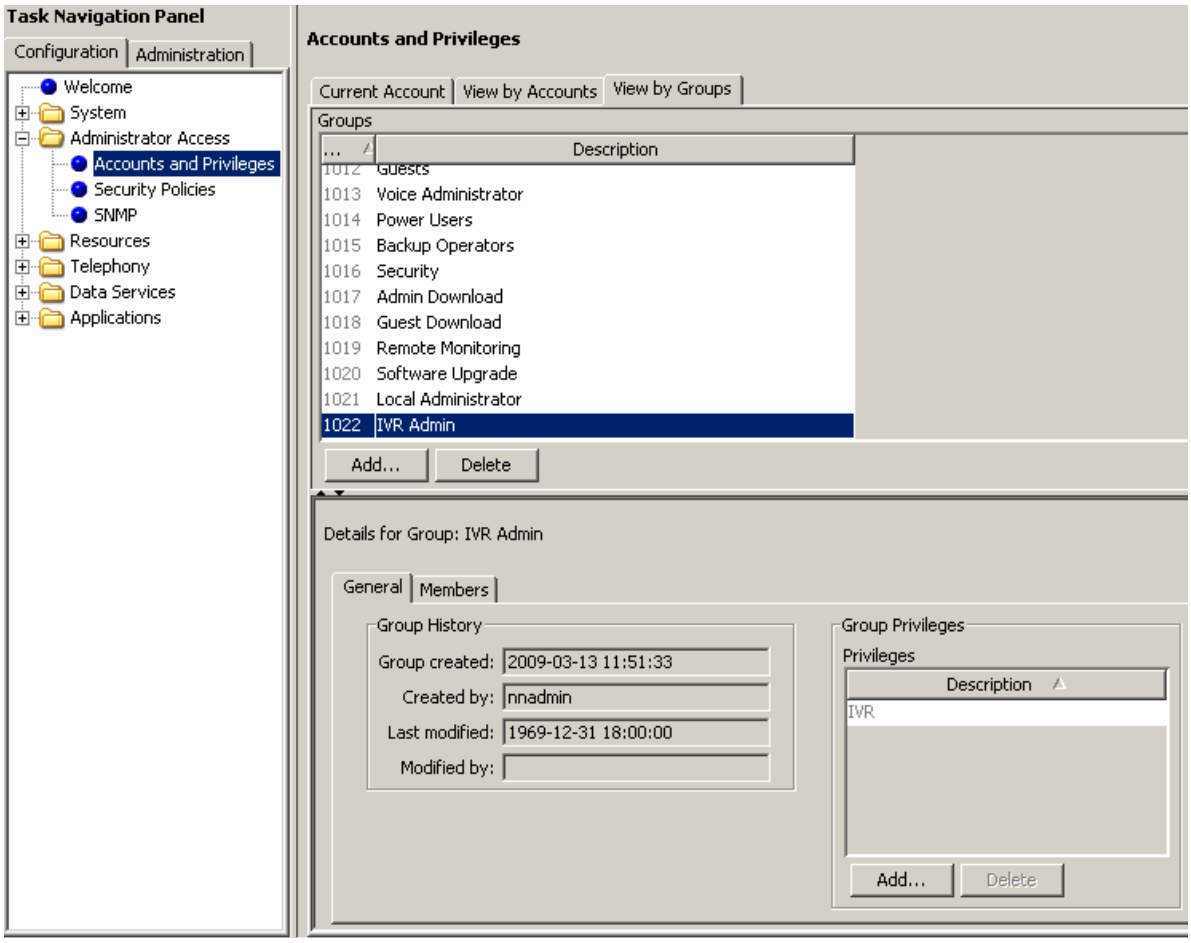
For information about reports, refer to the *PeriReporter User's Guide* and the *BCM -IVR Integration Supplement*.

IVR guides

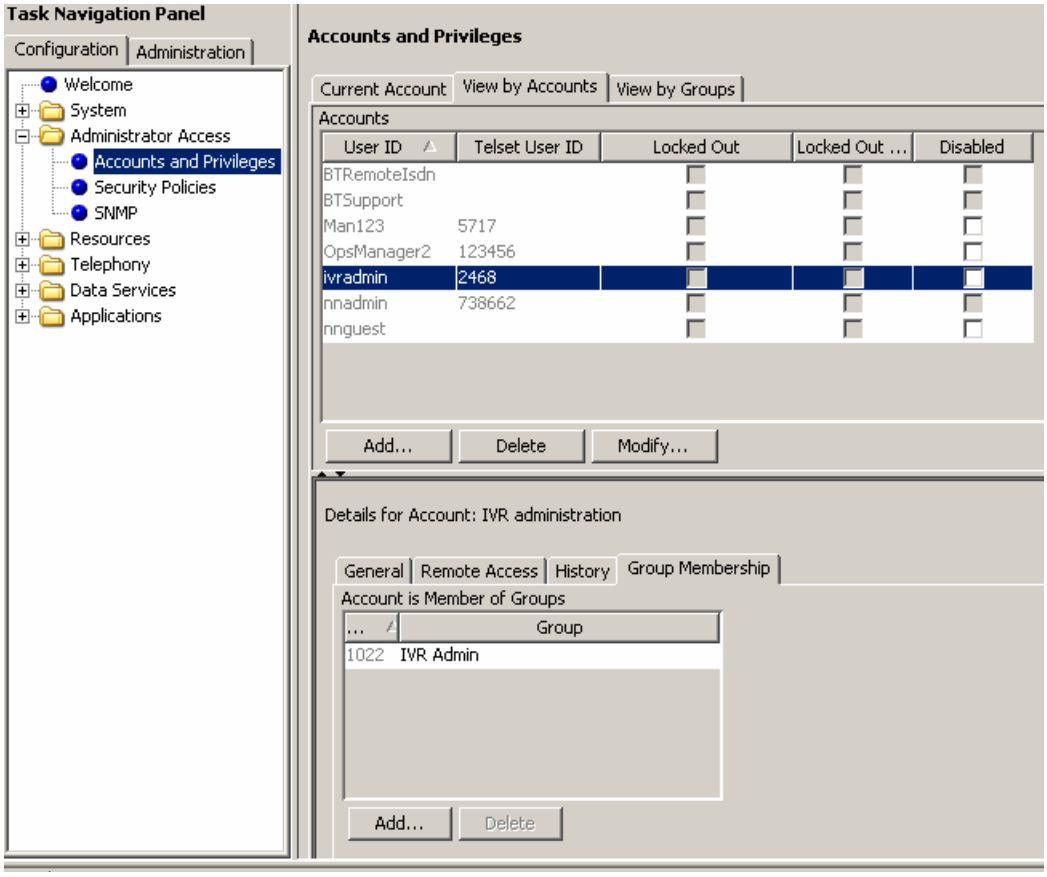
You can download IVR documentation from the Avaya BCM web page.

IVR group privileges

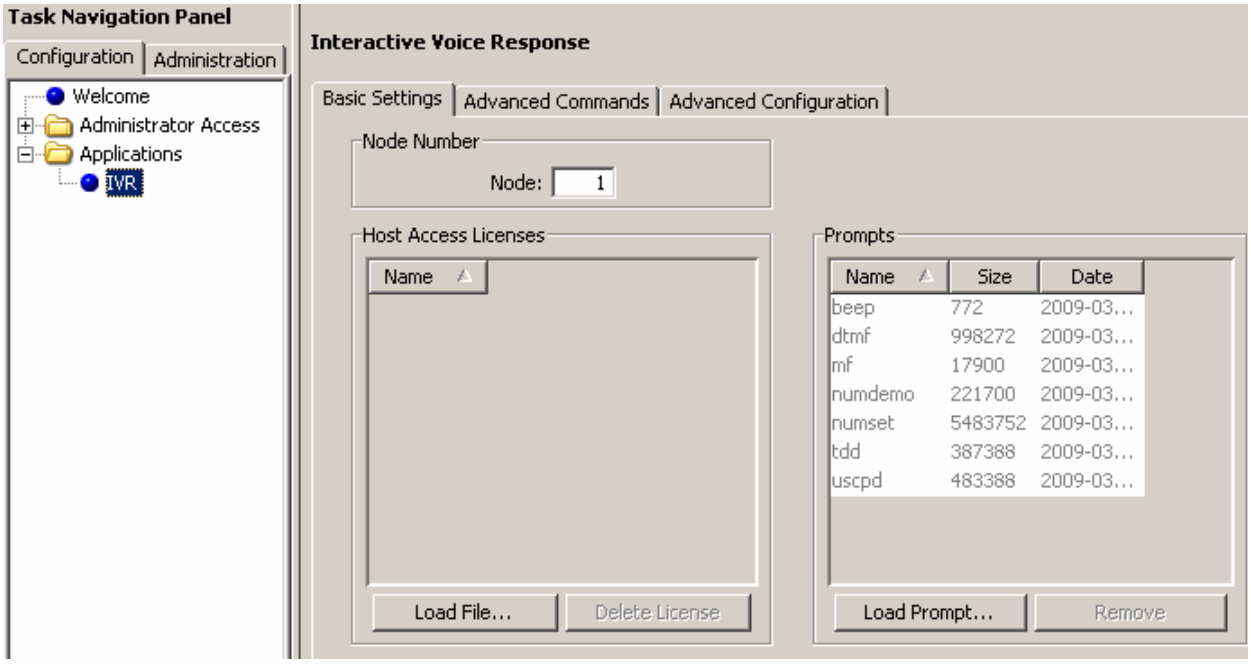
The IVR Administration screens have IVR privileges associated with them. You can create a group (IVR Admin in the example below), with IVR group privileges only.



This means that an account (ivradmin, for example) belonging to this group only can only perform IVR Administration.



The ivradmin login screen would allow only IVR administration.



Chapter 4
Database Access Configuration

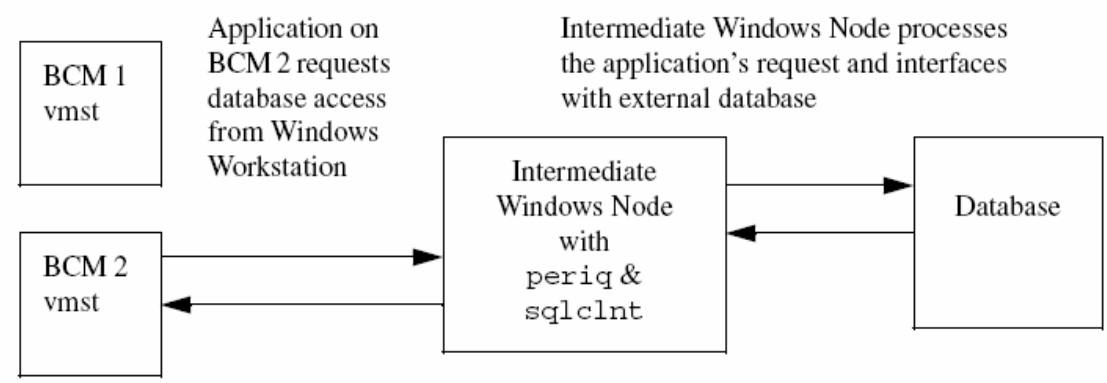
This chapter contains the following information about how to administer the IVR application on your Avaya Business Communications Manager (Avaya BCM) system:

- Overview
- Configuring periq on the Windows Node
- Configuring sqlclnt on the Windows Node

Overview

Some applications require access to external databases. BCM-IVR 2.1 supports Host database access and VTCPD. The system is configured so that database requests from applications running on Avaya BCMs are relayed to an intermediate Windows node where `periq` and `sqlclnt` are running. The Windows node retrieves the information and relays it back to the application running on the Avaya BCM.

The following graphic shows the interaction between the application on the Avaya BCM, the intermediate Windows node, and the external database.


BCM 1
vmst
Application on BCM 2 requests database access from Windows Workstation
Intermediate Windows Node processes the application's request and interfaces with external database
BCM 2
vmst
Intermediate Windows Node with periq & sqlclnt
Database

To configure the BCM-IVR 2.1 system for database access, periq and sqlclnt must run on the Windows node. Both `periq` and `sqlclnt` are installed as components of `perirdb` in a TYPICAL installation on the Windows workstation. The Windows workstation can serve as the intermediate Windows node.

VMST 3 on the Avaya BCM Node

Ensure `vmst` is running on the Avaya BCM node where the applications requiring database access are running. The following command produces an output showing the list of active vmst ports and the attached Avaya BCM components:

```
[root@BCM1000 root]#vvpsactive
```

```
[root@BCM1000 root]# vvpsactive
Dec  6 21:55:33
Service(Port)    PID       Component(number)     Flags
================================================================
vmst(1)       26437      BCM1000.2 (#2)
Connected:  vastimer(66)

vastimer(66)    26224
Connected:  vms(1)
```

Configuring periq on the Windows Node

To configure periq on the Windows Node, you must edit the gen.cfg file. The following figure shows a sample gen.cfg file:

```
#
# All executables listed in this file should support the NT convention
# for srp-triggered termination.  If you do not know what this means,
# please do not add any entries to this file.
#
# NAME            NODE  PORT  is-VOS-CLASS      PRI   COMMAND LINE
#

alarmd            -     -     1           0     alarmd
configd           -     -     1           0     configd
conout            -     -     1           0     conout
psched            -     -     0           0     "psched -run"
nriod             -     -     1           0     nriod
#vastimer         -     -     0           0     vastimer
#screendaemon     -     -     0           0     screendaemon
pmgr              -     -     1           0     pmgr
#vsupd            -     -     0           0     vsupd
#periweb          -     -     0           0     periweb
#proxy            -     -     0           0     "proxy -S ccss -L cons -l info -k 10 -n"
#
#
#periq_bcm1000    -     -     0           0     "periq -s 16 -v bcm1000:1 -a sqlclnt -q odbc1 -mt"
#sqlclnt_bcm1000  -     -     0           0     "sqlclnt -v 1 -N bcm1000 -s 221 -U MG2gojitTV3Rd3X8M
#
#
#periq_bcmpso     -     -     0           0     "periq -s 17 -v bcmpso:2  -a sqlclnt -q odbc2 -mt"
#sqlclnt_bcmpso   -     -     0           0     "sqlclnt -v 2 -N bcmpso  -s 222 -U MG2gojitTV3Rd3X8M
```

In the gen.cfg file, make the following entry for periq:

```
periq -v NodeA:3 -s16 -a sqlclnt -q odbcq32
```

The preceding command starts periq and connects the Windows node to vmst number 3 (running on the host Avaya BCM) through port 16. Port 16 is the default port for `periq` and is configured in $ASEHOME/etc/services. The preceding command also restarts `sqlclnt` services and sets the queue name as odbcq32.

The following table lists `periq` attributes and their descriptions:

Table 2 periq Attributes

Attribute	Description
-v[host:]vps	host and vps number
-s #	port number to vms
-P poll	new connection poll (default 15 seconds
-q [name:]#	[queue name:] number of tellers
-m {g|f}	not route GET or FREE to tellers
-m i	free tellers on ISSUE FREE from app
-m r	return undelivered message to tellers
-m t	time message flow
-a {rsc|ports}	announce restart to service
-X {a|s}	debug message flow (full or short form)
-X 1	debug queueing
-r {device|file}	redirect output (to /dev/tty#,/dev/console)
-H	help

Configuring sqlclnt on the Windows Node

In the gen.cfg file, make the following entry for sqlclnt:

```
sqlclnt -v 3 -s 230 -N nodeA -u sa/peri@database -m odbc -q odbcq32 -P 16 -Q 5
```

This command specifies the system to start the `sqlclnt` service and connect it to vmst 3 on Node A through port 230. Port 230 is one of many available to `sqlclnt` and is configured in $ASEHOME/etc/services. The unencrypted connection string to the database is sa/peri@database. Database mode is ODBC and `sqlclnt` is part of queue odbcq32. The `sqlclnt` service communicates with `periq` through port 16 with a ping rate of 5 seconds.

The following table lists `sqlclnt` attributes and their descriptions:

Table 3 sqlclnt Attributes

Attribute	Description
-v #	vps number
-s port	port number to use
-N host	VMS host machine (default - local)
-P port	PeriQ port (default - any)
-m queue_type	‘oracle’, ‘sybase’, ‘odbc’, ‘db2’ or ‘mssql’
-q name	associated queue name

Table 3 sqlclnt Attributes

Attribute	Description
-u[<usr>[/<passwd>][@<server><odbcdsn%OEM>]]	RDBMS connect string. If connect string contains @ or /, use \\ as escape character.
-U cryptstring	Crypted RDBMS connect string
-l directory	Enable SQL Timing, specify directory path to place log files
-S backup	user/psswd@server backup/fail over server. If connect string contains @ or /, use \\ as escape character
-B crypststring	Crypted RDBMS connect string for backup/fail over server
-c AUTOCOMMIT	Enable AUTOCOMMIT
-x Transaction Timeout	Transaction Timeout for a database Query (ODBC)
-L Login TimeOut	Login TimeOut (ODBC)
-T poll	new server connection poll (default 20 seconds)
-R #	number of re-cycle attempts (default forever)
-Q ping rate	Set ping rate for retrying connection to vmst (default 60 seconds)
-X {sln}	debugging level
-r {devlfile}	redirect output
-H	help